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**Integrated Safety Management System**

**Phase II Verification at the Y-12 Plant at the**

**Oak Ridge Site**

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**Volume II**

**ASSESSMENT FORMS**



**August 2000**

**Washington D.C.**

**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

<b>Functional Area: BBC</b>	<b>Criteria Met</b> <b>Yes</b> <u>  X  </u> <b>No</b> <u>    </u> <b>Date:</b> August 29, 2000
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**OBJECTIVE: BBC.1** DOE procedures and actions ensure that missions are translated into work, expectations are set, tasks are identified, priorities are balanced, and resources are allocated. Oversight of the execution of the budget is performed ensuring that program goals are met while maintaining balanced priorities. DOE personnel who perform these functions, will have competence commensurate with the assigned responsibilities. (CCE-1, -5, -10 and CE II-1, -7)

Criteria

1. DOE guidance for translating mission into work includes delineating its plan of work. This means the scope, schedule, and funding allocations for each fiscal year.
2. DOE sets expectations for the contractor through implementation of the ISM DEAR clauses in contracts. The ISMS Description is updated and approved as scheduled by the contracting officer.
3. DOE roles and responsibilities are clearly delineated to ensure a satisfactory level of safety, accountability, and authority to define the scope of work.
4. DOE procedures and actions ensure that the contractor adequately prioritizes work so that mission and safety expectations are balanced and met within available budget and resources. The process involves line management input and approval of the results.
5. DOE procedures provide for approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
6. DOE procedures and actions provide for change control of approved tasks, prioritization, and identification of resources.
7. DOE provides guidance on expected performance objectives and approves the contractors performance measures and commitments. The incentive and performance measures structure promotes balanced priorities.
8. DOE procedures and actions ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.

Approach

Record Review: Review the FRAM/FRA and DOE implementing procedures. Determine if there is adequate guidance for DOE involvement in the clear definition of the scope of work. Determine if the mechanisms for translation of the missions and policies from higher authority

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are appropriate, if a mechanism for assigning priorities has been established, and if performance measures and commitments are reviewed and approved along with the ISMS Description annual update. Determine if the roles and responsibilities for DOE personnel are adequate to support the site mission. Verify that DOE line management and staff personnel roles, responsibilities, and authorities are appropriate to support business, budget, and contract functions.

Review DOE-ODP and DOE-ORO procedures that describe the budget and planning process and those documents that identify mission requirements (such as the Defense Programs Strategic plan and the Directive Work Schedule), balancing of resource allocations, and approval of contractor Task Based Management System (TBMS) documents. Review DOE procedures for review, approval, and change control of the TBMS or other binding budget documents. Review the M&O contract and RFP for proper implementation of the ISM DEAR clauses 970.5204-2, 970.5204-78 and 970.5204-86. Review the incentive and performance fee process documents.

Select mission tasks from the Defense Programs Strategic Plan and the Directive Work schedule and track the tasks through the process to evaluate how the above criteria are met. Review future year planning and current year authorized work. Select several current year authorizations and track change control from DOE (Albuquerque and HQ) to the LMES and to the affected Y-12 facility. Review tasks funded and the funding process for individual facilities.

Review personnel position descriptions, selection criteria, training programs and training records to determine if the staff competency is adequate. Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions. Review mission prioritization procedures to determine if tailoring of resources is appropriate. Verify that the budget process allows adequate resources for standards selection, hazard controls, and work authorization processes to support work planning and scope definition.

Interviews: Interview DOE personnel responsible for management of the budget process. Interview line managers responsible for Headquarters directed mission accomplishment. Interview the ES&H manager to determine how the process for integration of safety into mission tasks is accomplished. Interview DOE procurement personnel regarding contract requirements.

Interview selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work scope.

Observations: If possible, observe actual budgetary discussions (including meetings involving the development of the FY01 or FY02 TBMS and the FY01 performance objectives, performance measures, and commitments) within and between DOE and LMES to see the practical application and results of the procedures.

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Records reviewed:

- Defense Programs, Department of Energy, Stockpile Management Budget Guidance Handbook, March 2000
- Oak Ridge Operations 1999 Strategic Plan
- ORO O 360, Employee Education and Training, 02/24/2000
- ORO O 410, Work Authorization System, 12/01/98
- ORO M 110, Oak Ridge Operations Organization Manual, December 1999
- ORO M 411.1.C, Manual of Safety Management Functions, Responsibilities, and Authorities, Level II, for Oak Ridge Operations, March 1, 2000
- Performance Evaluation Plan for LMES for FY 2000
- YSO-1.2, Organization and Responsibilities, 07/01/99
- YSO-1.7, Baseline Change Control Process, 09/30/99
- YSO-1.9, Master Assessment Plan, 04/02/99
- YSO-5.1, Procedures Control, 05/06/98
- YSO-9.2, Contractor Oversight, 02/24/98
- YSO-9.7, ES&H Quality Walk-Through Inspection Reports, 04/28/99
- 13 Work Authorization Directives to LMES from ORO, 11/19/99
- Work Authorization for Stockpile Management from HQ Defense Programs to ORO, various dates
- Y30-600, Workplan Preparation and Administration, 04/11/2000
- Y30-601, Contract Management Baseline Change Control Process, 11/4/99
- Memorandum of Agreement between AMEM and Y-12 Site Office regarding AMEM Activities at the Y-12 Site, 2/8/99
- Memorandum of Agreement between the ORNL Site Manager and the Y-12 Site Manager, November 1, 1997
- Y/RA-3212, Environment, Safety and Health Budget Formulation Submittal for the Oak Ridge Y-12 Plant Fiscal Year 2002, March 2000
- Oak Ridge Y-12 Plant Fiscal Year 2001 Stockpile Management Program Cost Estimate Volume I, July 2000
- Oak Ridge Plant Fiscal Year 2001 Overhead Program Cost Estimate Volume XVII-A, July 2000
- LMES Contract Clause I.105 (B) DEAR 970.5204-78, 8/27/98
- FY 2002 Defense Programs Stockpile Stewardship Budget Call, April 19, 2000
- Fiscal Year 2000 Stockpile Management Operating Guidance to the AMDP from the Deputy Assistant Secretary for Military Application and Stockpile Operations, December 16, 1999
- Training Record Summary for 5 ODP personnel
- LMES Baseline Change Proposals (several)

Interviews:

- Chief Financial Officer, Oak Ridge Operations Office
- Planning and Budget Director, Oak Ridge Operations Office
- Assistant Manager for Environment, Safety, Health and Emergency Management
- Director, Procurement and Contracts Division

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- Y-12 Plant Contract Officer
- Team Leader, Training and Development Group
- Assistant Manager for Defense Programs
- Director, Programs Division
- Director, Operations Management Division
- Director, Technical Division
- Program Analyst, Defense Programs
- Budget Analyst, Programs Division
- Weapons Program Manager
- Nuclear Materials Management and Storage Program Manager
- Environment, Safety and Health Management Plan Coordinator
- Readiness in Technical Base Facilities Program Manager
- Program Manager, Authorization Basis
- Program Manager, Environmental Compliance
- Indirect Funding Program Manager for LMES
- Financial Specialist, LMES

Observations: None

**Discussion**

Headquarters Defense Programs provides guidance to initiate the process of translating mission into work. This guidance is both programmatic as well as financial in nature. However, for the Fiscal Year (FY) 2002 the guidance was sent out unusually late. The guidance (Budget Call) was not received by the Y-12 Site Office until April 28, 2000 whereas the Department's schedule identifies the January time frame for this guidance to be sent out. In lieu of timely guidance from Headquarters, the Oak Ridge Operations Assistant Manager for Defense Programs provided guidance to the contractor on January 28 2000 in order to facilitate the budget process (BBC.1-1). No formal direction or guidance to Y-12 Site Office, now the Y-12 Office of Defense Programs (ODP) from the Albuquerque Operations Office (ALO) was found. However, ODP personnel indicated that informal communication with personnel from the Albuquerque Operations Office did occur. With the shift in the Y-12 Plant Core Stockpile mission, ALO involvement does not appear to be as critical as it was in the past.

In the execution year of the budget cycle, Headquarters Defense Programs sends Work Authorizations to the Oak Ridge Operations Office. These Work Authorizations provide a statement of work that contains program objectives, strategy and performance measures; as well as financial data and reporting requirements. For execution of work, Lockheed Martin Energy Systems (LMES) develops detailed Basis of Estimate (BOE) costs for the work to be performed. The BOE explains the logic, method, data and calculations used to estimate the resources required for performance of the work. These BOEs provide the back-up detailed data for the Work Authorization Directives (WADs), and are used by ODP to evaluate the resources required to perform the work identified in the WADs. The WADs are prepared prior to the beginning of each fiscal year. These documents which define the fiscal year scope of work, the schedule for completing the work and the associated estimated cost are incorporated into the prime contract.

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The WADs are made up of discrete tasks that tie to LMES Work Breakdown Structure (WBS) with associated metrics, cost and resources.

As part of an associated Department of Energy process, LMES develops an Environment, Safety and Health (ES&H) Management Plan. This Plan is developed to meet the requirements of Contract Clause 970.5402-2 for the integration of ES&H into work planning and execution. It does not appear that the ODP is ensuring that the LMES ES&H Plan is consistent with and integrated into the WAD process. These two processes need to be reconciled. Also, there was no indication that the ES&H planned activities were tracked to assure completion. Further, there is a question on the validity of the current Plan developed by LMES and reviewed and approved by ODP. The unfunded fire protection activities in the Plan are classified as “improvements.” However, a recent assessment identified significant shortcomings with the Y-12 Plant Fire Protection Program, and a CAMP review identified certain unfunded fire protection activities as compliance related (BBC.1-2).

The previous Integrated Safety Management System (ISMS) Assessment found that another contract clause (970.5204-78 Laws, Regulations and Directives), which was required to be added to the contract, had a deviation that was not approved by the Department’s Procurement Executive. This deviation was corrected by the Y-12 Plant contracting officer.

The ODP does not have a procedure in place to address the development or review and approval of the WADs. This is considered a significant shortcoming in the ODP procedure process, especially since this observation was made in the previous ISMS Assessment. The lack of a formal procedure for WAD development contributed to the “spotty” involvement of subject matter experts in this process. For example, the Authorization Basis Program Manager was not brought into the WAD review process by the WAD managers. Further, the Hazards Assessment Sub-team noted that neither the Authorization Basis Manager nor the LMES Facility Safety Division Manager was involved in the process that lead to funding cuts and scope adjustment to authorization basis work in the WADs. One other subject matter expert indicated that until recently, he was unaware that Basis of Estimate documents existed. The Oak Ridge Operation Office does have an Order, ORO O 410 dated 12/01/98, for a work authorization system. This Order is at a very summary level and does not speak to the YSO-LMES WAD process. Also, this Order, itself, needs to be up dated as it references a cancelled DOE Order (BBC.1-2).

The execution of the fiscal year work plan was perturbed by direction from Headquarters Defense Programs to continue EUO Process Based Restart and Modernization work based on anticipation of receipt of a supplemental funding request to Congress. When funding did not arrive when anticipated, ODP approved funding cuts to authorization basis (AB) work, as well as other work. It is not clear that this AB work was cut based on a prioritization ranking or due to the expediency of laying-off sub-contractors who were performing the work

The ODP does have a procedure (YSO-1.7) in place to oversee changes to the official baseline during the fiscal year. The procedure seems to assume that WADs will only increase in funding. As noted above, this is not always true. Through interviews and review of documentation, it was determined that ODP follows the procedure. However, the BBC sub-team had two concerns with the procedure, itself. First, the procedure states that “allocations of contingency to a WAD

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in increments of less than a \$1,000,000 require a Baseline Change Proposal (BCP), but do not require DOE approval. There are several WADs in the range of \$2.5 - \$5.0 million. Having just an absolute dollar amount threshold gives the contractor the flexibility to change the funding without ODP approval from 20 to 40 % for these WADS. The sub-team considered this to be an excessive amount of financial freedom for the contractor. Accordingly, a percent threshold, as well as a dollar amount threshold for DOE approval to a WAD change should be added to the procedure. Second, the procedure states that WADs will be revised to reflect the authorized BCPs following the end of each quarter. This is not a problem for all quarters except the last quarter of the fiscal year. Since the WAD is under the contract, LMES could cost at the previous, higher amount for the entire quarter under a WAD that had a funding cut, causing an over-run for the fiscal year in violation of the Anti-deficiency Act. For the last quarter, changes to the WAD should be made on a more frequent basis (BBC.1-4).

Also, the procedure states that approved baseline changes should be reflected in the baseline version of the M&O Contractor's Systems, Applications, and Products (SAP) accounting system no later than the last working day of the month. In the last quarter of the fiscal year, changes should be made to the accounting system as they are approved to preclude the possibility of a year-end overrun (BBC.1-4).

Expectations have been set by ODP through implementation of the Performance Evaluation Plan (PEP) for Lockheed Martin Energy Systems and through identification of deliverables/milestones found in the individual WADs. The milestones, metrics, and deliverables in the PEP are both award fee and performance-base incentive fee. A Memorandum of Agreement (MOA) is used to provide more detailed information on the deliverables/milestones. The milestones, metrics, and deliverables were considered to be appropriate with respect to the number and type and their specificity.

ODP's roles and responsibilities could be better defined to ensure a satisfactory level of safety, accountability and authority to define the scope of work. As stated above, a procedure needs to be developed to cover ODP's process for implementation of the WADs with the associated roles and responsibilities. A MOA with the ORNL Site Manager and one with the Assistant Manager for Environmental Management identify responsibilities for the Y-12 Site Manager. In some cases, these responsibilities are not specifically identified in YSO-1.2, *Organization and Responsibilities*. For example, the MOA with ORNL states that the Y-12 Site Manager will be responsible for reviewing daily reports to keep abreast of occurrences at ORNL facilities located at Y-12. He is also responsible for informing the ORNL Site Manager of any ES&H problems and facility safety issues, and for ensuring that the problems are satisfactorily resolved. These responsibilities were not identified in YSO-1.2. The responsibilities identified in the MOAs need to be cross-walked to YSO-1.2. Further, some site personnel were unaware of the existence of these MOAs (BBC.1-3).

It would be prudent to develop a procedure to cover ODP roles and responsibilities, as well as the process for operating as a "site manager." The fees charged to ORNL and the Environmental Management program for common use items, such as, the Site cafeteria, were handled by the LMES Indirect Funding Program Manager. No one at ODP was involved in this process or sure of how it worked. An ODP procedure for site management would cover these types of

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responsibilities, as well as, safeguards and security, and emergency management. With the transition to the new National Nuclear Security Administration, the Y-12 Site Office will become more autonomous. Accordingly, a new procedure covering site management responsibilities seems appropriate (BBC.1-3).

Also, the roles and responsibilities identified for the ODP organization in ORO M 110 need to be reconciled with YSO-1.2. For example, ORO M 110 identifies a review and approval of "Request for Special Work" responsibility for the ODP. This responsibility is not identified in YSO-1.2. Also, ORO M 110 has the Technical Division coordinating DNFSB activities while YSO-1.2 identifies the Operations Team for this responsibility (BBC.1-3).

Most existing ODP procedures should be reviewed and updated. The YSO-1.2 procedure that is basic to the Site Office is out of date. Besides organizational titles and structural changes, organizational responsibilities have also changed. As stated above, the roles and responsibilities identified in the MOAs with the Site tenants need to be incorporated into YSO-1.2. A procedure, YSO-9.7, *ES&H Quality Walk-Through Inspection Reports*, is not being implemented by the Site Office. Personnel felt the requirements of the Procedure are covered by other ODP procedures and should probably be rescinded. While it was not clear to the sub-team that the procedure should be rescinded, this is another indication for the need for a complete procedure review. Finally, Sub-team DOE.3 noted that a process needs to be established that is consistent with line management oversight mandated by DOE P 450.5. It is considered that the ODP procedures offer a significant opportunity for improvement (BBC.1-3).

The ODP provided guidance to LMES to prioritize the planned activities. LMES improved their prioritization effort this year to include several workshops on the process that involved ODP personnel and utilization of a real-time automated process for prioritization. The ODP Programs Division took an active part in the LMES process, evaluated the LMES prioritization list, and interacted with LMES on recommended changes to the prioritization list. Efforts were made by both the ODP and LMES to balance the funding levels for both mission and safety.

Competence commensurate with assigned responsibilities is tentative. The ODP appears to be in an unsettled state. Several people are new to their positions. Several key positions are vacant. Assignment to the Source Evaluation Board has significantly impacted the ODP. The two people in the Programs Division involved with finances were considered to be knowledgeable and competent to perform their duties. Although there is a budget analyst in the Programs Division, cost validation for the BOEs is supposed to be performed by the WAD managers. It did not appear that in all cases this was being done, or that the personnel were capable of performing this function. Training records for five people in the ODP were reviewed. One program manager in a technical area did not have a college degree but was working toward one (DOE.1-1).

The Y-12 Integrated Safety Management System Description was approved by the Field Manager for National Nuclear Security Administration Operations on August 16, 2000.

Conclusion and Summary: The criteria for this objective have not been met.

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Define the Scope of Work

Although missions are translated into work; expectations are set; tasks are identified and prioritized; and resources are allocated, the lack of an ODP procedure for the development, review and approval of the WADs has created several problems at the Site. Successful completion of the process seems to depend upon the expertise of a few individuals. The WAD managers were intimately involved in this Core Function. However, the subject matter experts/ES&H personnel need to be better involved in the process. The ODP change control procedure needs to be revised as it provides too much funding flexibility to LMES. Also, not changing the funding level of the WAD until after the last quarter of the fiscal year could lead to an overrun.

Clear Roles and Responsibilities

This is an area in need of much improvement. Several documents identifying roles and responsibilities for ODP personnel were found not to be consistent. These documents include the ODP procedures, the Oak Ridge FRAM and the Oak Ridge Operations Organization Manual, and the Memorandum of Agreement between the Y-12 Site Manager and ORNL and between the Site Manager and the AMEM. These documents need to be reconciled. Also, with the transition to the NNSA, a procedure to cover ODP roles and responsibilities, and the process for Site management should be considered.

Issues

Noteworthy Practices

BBC.1-1 In spite of unusually late budget guidance from Headquarters Defense Programs, the ODP through initiative and its knowledge of the Stockpile Management Program managed to ensure that the Site budget process for FY 2002 continued with a minimum amount of disruption.

Opportunities for Improvement

BBC1-2 An ODP procedure needs to be written to address the development, integrated review with ES&H/SME personnel and approval process for WADs. The procedures should include review of the integration of BOEs with the ES&H Management Plan. This is a repeat issue from the 1998 Verification.

BBC1-3 Roles and responsibilities for the ODP personnel are not clearly and formally defined throughout all documentation where they are identified.

BBC1-4 The ODP procedure for change control of approved tasks and resources needs to be rewritten to provide less financial flexibility to LMES and to lessen the possibility of a year end overrun.

Inspected by: _____ Anthony Neglia	Approved by: _____ Joseph King ISM Team Leader
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<b>Functional Area: BBC</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 29, 2000
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**OBJECTIVE**

**BBC.2** Contractor procedures and actions ensure that missions are translated into work, tasks are identified, priorities are balanced, and resources are allocated. Resources are allocated to address safety, programmatic, and operational considerations by contractor personnel who have competence commensurate with the assigned responsibilities. (CCE-1, -5, and CE II-1)

**Criteria**

1. Contractor procedures and actions translate mission expectations from DOE into tasks that permit identification of resource requirements, relative prioritization, performance measures and commitments that are established consistent with DOE requirements.
2. Contractor roles and responsibilities are clearly delineated to ensure a satisfactory level of safety, accountability, and authority to define the scope of work.
3. Contractor procedures and actions ensure that work is planned such that mission and safety expectations are balanced and met within available budget and resources. The process involves line management input and approval of the results.
4. Contractor procedures and actions provide for DOE approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
5. Contractor procedures and actions provide for change control of approved tasks, prioritization, and identification of resources.
6. Contractor procedures provide for flowdown of DEAR 970.5204-2, Integration of Environment, Safety and Health into Work Planning and Execution, requirements into subcontracts involving complex or hazardous work.
7. A process is in place and responsibility assigned to maintain the ISMS Description and conduct the annual update.
8. Contractor procedures and actions ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.

**Approach**

Record Review: Review Defense Programs Strategic Plan, the Directive Work Schedule, and other site agreements and action commitments. Review corporate/site manuals of practice that describe the budget and planning process including the Systems Applications and Products (SAP). Verify that LMES line management and staff personnel roles, responsibilities, and

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authorities are appropriate to support business, budget, and contracts functions. Review procedures for control and integration of weapons program task and funding with DOE-HQ infrastructure and program funding. Review contractor Work Authorization Directives (WAD), as well as the procedures for their development. Review LMES procedures for work authorization in compliance with the DOE approved SAP. Review processes for review, approval, and change control of the SAP or other binding budget documents. Review tasks funded and the funding process for individual facilities. Review flowdown of DOE budget guidance through the establishment of performance measures and incentives.

Select mission tasks from the Defense Programs Strategic Plan and the Directive Work schedule and track the tasks through the process to evaluate how the above criteria are met. Review future year planning and current year authorized work. Select several current year authorizations and track change control from DOE (Albuquerque and HQ) to the LMES and to the affected Y-12 facility. Select several LMES subcontracts and review the flowdown of the DEAR clause into subcontracts for hazardous work.

Review the process for maintaining and changing the ISMS Description. Review the status of the 1999 Program Description update. Review management meeting records that document resolution of proposed ISMS Description changes.

Review organizational documentation to determine the personnel positions with responsibility associated with this objective. Review the position description for those positions. Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions. Review any training or qualification material including corporate/site manuals that support gaining or verifying competence to fill the positions.

Interviews: Interview LMES personnel responsible for management of the budget process and ISMS Description updates. Interview managers at selected corporate/site level to determine their understanding and implementation of the defined process for translation of mission into work authorization. Interview the ES&H manager to determine how the process for integration of safety into mission tasks is accomplished. Interview selected line managers and ES&H professionals to determine how safety is incorporated into the budget plans and authorization. Interview LMES procurement personnel regarding subcontract flowdown requirements.

Interview selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work scope.

Observations: If possible, observe actual budgetary discussions (including meetings involving the development of the FY01 or FY02 TBMS and the FY01 performance objectives, performance measures, and commitments) within and between DOE and LMES to see the practical application and results of the procedures. Attend a management meeting, if scheduled, that reviews proposed ISMS changes.

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Records reviewed:

- Y15-635PD, Energy Systems Integrated Safety Management System, dated 7/27/00
- Y15-636, Integrated Safety Management Program, dated 4/25/00
- Y30-600, Workplan Preparation and Administration, dated 4/11/00
- Y30-601, Contract Management Baseline Change Control Process, dated 11/4/99
- Y30-602, Plan Management and Control, dated 9/30/98
- Y30-604, Y-12 Infrastructure Management Process, dated 9/30/98
- ESS-MS-131, Integrated Resource Management System, dated 6/28/94
- Y73-164PD, Service Subcontract Safety and Health Management Program, dated 4/20/99
- Y/RA-3212, Environment, Safety and Health Budget Formulation Submittal for the Oak Ridge Y-12 Plant for Fiscal Year 2002, dated March 2000
- Procurement Operating Practices, dated 12/15/99, Section 4.1.11 Health and Safety
- FY2000 Performance Evaluation Plan for Lockheed Martin Energy Systems, 6/14/00 Revision
- Draft FY2001 Performance Objectives, Performance Measures, and Commitments
- Memorandums of Agreement for a set of Performance Based Incentive Metrics and Award Fee Milestones: T4 Emergency Management, T10 Authorization Basis, Y-12.2 Budget and Fiscal Management, and Y-12.3.4 Material Recycle and Recovery
- Weapons Programs Integrated Safety Management Self-Assessment Final Report, dated 7/31/00
- Modification M203 to Contract DE-AC05-84OR21400 incorporating DEAR Clause 970.5204-2, and Laws, Regulations and DOE Directives Clause 970.5204-78 (Deviation), dated 12/31/97
- Modification M218 to Contract DE-AC05-84OR21400 removing deviation and incorporating Laws, Regulations and DOE Directives DEAR Clause 970.5204-78
- FY2000 Baseline Change Proposal change log, dated 8/22/00
- Baseline Change Control Board meeting minutes for meetings on 10/13/99, 11/10/99, and 12/8/99
- Baseline Change Proposal Number 00-07 for Enriched Uranium Operations Process-Based Restart
- Baseline Change Proposal Number 00-49 for 420 Fringe Reversal and Engineering Rate ("Omnibus" BCP)
- Baseline Change Proposal Number 00-104 to Rebuild 3350 Kathabar/Place in Service in Building 9204-2E
- Work Authorization Directive for Enriched Uranium Operations Process-Based Restart for 10/1/99 to 11/30/99 performance period
- Basis of Estimate documents for FY2001, dated July 2000: Defense Programs Facilities (Vol VI), Program Readiness (Vol VII), Mission Support (Vol XVI), and Overhead (Vol XVII-A)
- General Terms and Conditions Fixed Price, dated 12/99, for subcontracts
- Subcontract number 4300003612 with Creative Engineers for NaK Cleanup work scope
- FY2002 Core Stockpile Management Y-12 Budget Prioritization Process briefing slides
- FY2002 Prioritized Project Lists for DSW, Campaigns, RTBF, Overhead and Mission Support

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- Prioritized listing of Unfunded FY01 and FY02 Infrastructure Projects developed from the Capital Asset Management Process (CAMP)
- Oak Ridge Operations Office letter dated 7/13/99 from Acting Assistant Manager for Defense Programs to LMES President, Defense Programs Fiscal Performance and Baseline Management
- LMES President letter dated 8/3/99 to Manager Oak Ridge Operations Office, Contract DE-AC05-84OR21400 Energy Systems FY2000 Workforce Plan
- LMES Finance and Business Manager letter dated 10/8/99 to Chief Financial Officer, Oak Ridge Operations Office, Contract DE-AC05-84OR21400 FY2000 Performance Evaluation Plan
- LMES Director of Contracts letter dated 10/21/99 to Contracting Officer, Oak Ridge Operations Office, Contract DE-AC05-84OR21400 Authorization to Proceed with Enriched Uranium Operations Restart and Y-12 Modernization
- LMES Acting Vice President for Defense Programs letter dated 11/12/99 to Oak Ridge Operations Office Assistant Manager for Defense Programs, Contract DE-AC05-84OR21400 Baseline Change Proposals and Enriched Uranium Operations Process-Based Restart Work Authorization Directives
- LMES President letter dated 11/18/99 to Acting Assistant Secretary for Defense Programs, Personnel Impacts at the Oak Ridge Y-12 Plant as a Result of the FY2000 Budget, Contract DE-AC05-84OR21400
- Oak Ridge Operations Office Chief Financial Officer memorandum dated 11/23/99 to Deputy Assistant Secretary for Program Support, Fiscal Year 2000 Safeguards and Security Supplemental Funding Requirements
- LMES President letter dated 11/30/99 to Oak Ridge Operations Office Manager, Contract DE-AC05-84OR21400 Authorization to Proceed with Additional Work Scope
- Deputy Assistant Secretary for Military Application and Stockpile Operations memorandum dated 12/16/99 to Oak Ridge Operations Office Assistant Manager for Defense Programs, Fiscal Year 2000 Stockpile Management Operating Guidance
- Oak Ridge Operations Office letter dated 12/27/99 from Acting Assistant Manager for Defense Programs to LMES President, Fiscal Year 2000 Stockpile Management Operating Guidance
- LMES President letter dated 1/19/00 to Oak Ridge Operations Office Acting Assistant Manager for Defense Programs, Contract DE-AC05-84OR21400 Fiscal Year 2000 Stockpile Management Budget and Operating Guidance
- Oak Ridge Operations Office letter dated 2/9/00 from Acting Assistant Manager for Defense Programs to LMES General Manager, Fiscal Year 2000 Core Stockpile Management Budget Guidance and Performance Evaluation Plan
- LMES General Manager letter dated 3/9/00 to Oak Ridge Operations Office Acting Assistant Manager for Defense Programs, Contract DE-AC05-84OR21400 Fiscal Year 2000 Core Stockpile Management Budget Guidance and Performance Evaluation Plan
- Oak Ridge Operations Office letter dated 3/13/00 from Acting Assistant Manager for Defense Programs to LMES General Manager, Fiscal Year 2000 Core Stockpile Management Budget Guidance

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- Deputy Assistant Secretary for Military Application and Stockpile Operations memorandum dated 4/24/00 to Oak Ridge Operations Office Assistant Manager for Defense Programs, Fiscal Year 2000 Stockpile Management Operating Guidance

**Interviews:**

- General Manager
- Director of Weapons Programs
- Director of Strategic Planning
- Environment, Safety and Health Manager
- Manager of Procurement and Contracts
- Business Manager
- Y-12 Contract Manager
- Manager of Budgeting and National Security Programs Financial Management
- Readiness and Technical Base and Facilities Program Manager
- Mission Planning and Performance Improvement Lead
- Production Facilities Program Manager
- Facilities Support Manager for Building 9204-2E
- Mission Support, Overhead, and Assessments Manager
- Utilities and Infrastructure Management Manager
- Utilities Department Manager
- Mission Support, Overhead, and Assessments Analyst

**Observations:**

- Executive Steering Group meeting of 8/28/00
- Budget Round Robin meeting of 8/29/00

**Discussion**

The BBC sub-team reviewed a variety of documents, including Work Authorization Directive (WAD) and Basis of Estimate (BOE) documents, LMES procedures, program descriptions, correspondence, and illustrative examples of completed Baseline Change Proposal (BCP) forms. The BBC sub-team conducted a series of individual interviews with senior LMES managers and conducted two team interviews focused on specific, representative tasks: Building 9204-2E Kathabar rebuild and Steam Plant operations.

Mission expectations from DOE are translated by the LMES business processes into tasks with identified resource requirements, relative prioritization, performance measures and commitments. The Y-12 Site Office, now the Y-12 Office of Defense Programs (ODP), provides expectations and guidance to LMES via written correspondence, a “call” letter, that establishes the basic work scope and priorities by which LMES develops its annual budget request. Using a documented process, the Workplan Preparation and Administration procedure (Y30-600), LMES translates work expectations into tasks. Starting in FY01 with the establishment of the National Nuclear Security Administration, the work described in the “call” will be grouped and controlled within three categories corresponding to the expected appropriation from Congress. The three categories are Directed Stockpile Work (DSW), Campaigns, and Readiness Technical Base and Facilities (RTBF). Within DSW, Campaigns,

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and RTBF, Congress is expected to establish further breakdowns to more specific levels such as Stockpile Evaluation, Dismantlements, Operation of Facilities, Secondary Readiness, Storage, etc. (i.e., the WAD levels). It is expected that these lower levels of detail in the appropriation will have control points established with them so that the money can only be spent on work scope within a particular control point without going back to Congress to reprogram the funds. Since the DSW, Campaigns and RTBF structure did not exist when the budget and WADs for FY01 were first developed, the current work breakdown structure used for the WADs is not aligned with the expected FY01 funding control points. It is unclear how the budget for next year will be mapped into the new structure since the WADs for FY01 are already submitted and in review at ODP.

In the LMES process, the “call” information is provided to WAD Managers, who in turn provide information to Project Managers who actually develop the budget estimates based on the defined work scope. Personnel in the program, production and services organizations (usually the Project Managers) develop a BOE that identifies the resources required for a particular task. The Project Manager incorporates safety resources into the BOE based on the work scope definition and input from service providers. Support ES&H personnel are consulted during the development of the BOE. Safety resources such as industrial safety, industrial hygiene, radiation control, criticality safety, fire protection, etc. are planned and integrated with the production-related resources in the BOE. WAD Managers are expected to review the BOE and verify estimates for ES&H support activities with the ES&H organizations that will provide the support. LMES Project and WAD Managers sign the BOE for their specific tasks. The BOE, WAD and BCP processes, which have been in place since the 1998 ISMS Verification, have continued to mature into a useful requirements based budgeting approach. The processes and manuals of practice are being used to develop predictable, repeatable, and defensible definitions of the work scope requirements and associated budgets and these processes should be sustained through the upcoming contract transition (BBC.2-1).

The tasks are grouped together in a WAD and performance measures are developed and established in the set of milestones and metrics in the Performance Evaluation Plan (PEP). For FY00, the PEP was approved in October 1999, but revised by the Oak Ridge Operations Office (ORO) as late as June 14, 2000, three quarters of the way into the evaluation period. This change was related to the unsettled budget status of the Enriched Uranium Operations (EUO) work. The metrics and milestones in the PEP are each supported by more detailed Memoranda of Agreement between LMES and ODP that list specific performance expectations corresponding to the incentive and award fee.

The BBC sub-team reviewed ISMS procedures associated with definition of scope of work and concluded that the procedures delineate clear roles and responsibilities. The determination was made through review of the description of the roles and responsibilities in the ISMS Description document Y15-635PD, in the work scope definition section of the ISM Program document Y15-636, as well as in the procedure for Plan Management and Control Y30-602. Y15-635PD describes the Executive Steering Group (ESG), lead by the General Manager, as senior line managers who are responsible for the execution of the business planning and budgeting process, including prioritization of tasks and resources. That work planning and budgeting role for the ESG is amplified and described in Y15-636 to include reconciling the budget each fiscal year

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based on customer work scope requirements and ensuring resources are allocated to support the work scope authorized by the WADs in the contract. The ESG, which has been recently restructured into three leadership teams (Program, Production, Services) is also responsible to monitor progress of work scope execution and fee performance, and resolve budget issues. Various members of the ESG were interviewed to determine their responsibilities in the annual budget process. Those responsibilities include development of a business plan each year in order to implement the LMES strategic plan that was recently developed by the leadership teams. Y30-602 defines roles, responsibilities, and interaction activities for cost and schedule control of the work for both the Finance and Business Management Program personnel and the work managers.

Based on the interviews that were conducted, the BBC sub-team determined that the contractor's procedures and actions for work planning and budgeting ensure balanced priorities between mission and safety expectations. The prioritization process referenced in the Y30-600 procedure is the Integrated Resource Management System (IRMS) contained in ESS-MS-131. IRMS is a structured evaluation model that uses a consequence and likelihood matrix to help prioritize projects. The IRMS categories of consequences include safety, environment, regulatory, mission, and efficiency. LMES attempted to use IRMS for the FY02 project prioritization, but it was not fully successful since the safety category weights skewed the results and provided little separation of projects (if IRMS is not to be used in the future then ESS-MS-131 could be cancelled and replaced by a procedure for the current process). So, the ESG developed an FY02 Stockpile Management Budget Prioritization Process that was used during a series of workshops and meetings with ODP in February 2000. The result of this process was a set of prioritized WAD projects for DSW, Campaigns, RTBF, Mission Support, and Overhead work. This joint LMES-ODP effort resulted in an agreed upon set of prioritized projects which were then linked with their cost estimates and grouped into 15 budget priorities. The FY02 budget target was large enough to include only the first 3 of these 15 groups. However, this joint effort with LMES and ODP to evaluate the budget year work scope at the more detailed project level and reach agreement on the prioritized set of projects is encouraging and will become more important in improving the strategic planning and extending the budget planning window.

The ISMS Description document also references another prioritization process that is used for capital projects. The Y-12 Infrastructure Management Process procedure Y30-604 describes the Capital Asset Management Process (CAMP). The CAMP rating and scoring process was used this year to prioritize the currently unfunded infrastructure projects at Y-12. For example, the fire hazard upgrades (see FP.2-3) needed to correct continued non-compliance with NFPA codes appears as item number 14 on this list of 21 highest priority unfunded projects. The prioritized list of projects was also provided to DP Headquarters to support their efforts to prioritize and fund infrastructure projects across the weapons complex.

The Y-12 Plant budget reconciliation process is also used to help balance plant infrastructure, production, and environmental, safety and health requirements so that adequate funding is allocated based on priorities. A cost object reconciliation model is used to identify "over" and "under" liquidated tasks. During the interviews, it was learned that this year was the first year that the labor reconciliation was done. The failure to complete this reconciliation in previous years had been pointed out in last year's ISMS self-assessment as a weakness. The BOE process

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is most effectively implemented when the personnel involved communicate and work together as the process expects (see HAZ.1-1). The budget reconciliation process is directed by the ESG and is a process that culminates each fiscal year in a contract between LMES and DOE authorizing the Y-12 Plant to execute the work scope agreed upon in the WADs. Each WAD is supported by a BOE which is reviewed by the Finance and Business Management Organization (FBMO) as well as an LMES "Red Team," and the ESG, and then submitted to DOE for review and approval. Following DOE review, the contract is revised to include the approved WAD and DOE provides funding via the Financial Plan (FIN Plan).

It appears that LMES will complete the FY00 work scope within available budget and resources once the DOE FIN Plan is updated to reflect the recently approved supplemental budget request. The failure to have the EUO Process Based Restart (PBR) work within the budget at the beginning of FY00 is an example of a breakdown in the work planning process that neither DOE nor the contractor desire or can allow to continue. The BBC sub-team reviewed the correspondence and interviewed the senior managers involved in the preparation of the BCPs that were used to adjust work scope and budget in an attempt to complete FY00 PBR tasks within the budget. In July 1999, ODP directed that PBR be included in the FY00 budget with or without a plus-up in funding. It was expected at that time that a supplemental budget request to Congress would be approved quickly so no direction was given to cut work scope in other areas. As time passed and no additional funds were provided, additional letters were written between LMES and ODP, ORO, and Defense Programs at DOE Headquarters. More drastic cost cutting steps were considered, proposed to DOE, and implemented by LMES as the end of the fiscal year approached to prevent budget overrun. The plus-up funding was finally approved and provided to ORO earlier this month. But, it is now too late in the fiscal year to spend it all so some will need to be carried over to next year. The contractor and DOE need to strategically focus on the work scope planning process and extend the budget planning window beyond the current two year cycle. The budget year work plans need to be more accurately defined, prioritized and agreed upon with ODP since implementation of the new Congressional control points will reduce the ability to make changes once submitted (BBC.2-2).

LMES follows procedure Y30-601, *Contract Management Baseline Change Control Process*, to manage change control of approved tasks and WADs. The change process begins when the change initiator fills out a BCP. Safety is integrated into this step through interaction with safety disciplines and documentation in the "Safety Impact" section on the BCP form that is mandatory to complete. WAD Managers and Project Managers stated that they attend Baseline Change Control Board (BCCB) meetings when a BCP on their WAD is being reviewed. The LMES BCCB Secretariat tracks the status of BCPs and provides feedback on BCP decisions (both LMES and DOE decisions). A review of the BCP Status Log over the past three years shows that this is an active change control process with 238 BCPs in FY98, 211 in FY99, and 115 to date this year. The WAD and Project Managers demonstrated that they see the feedback on approved BCPs in the Systems, Applications, and Products (SAP) system data update that they use to track their own cost and schedule performance. Those interviewed described a working process consistent with the LMES procedure (Y30-601) for obtaining review and approval of changes.

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LMES procedure Y73-164PD, *Service Subcontract Safety and Health Management Program*, provides for the flowdown of DEAR clause 970.5204-2, *Integration of Environment, Safety and Health into Work Planning and Execution* requirements into subcontracts involving complex or hazardous work. The DEAR clause is included in the LMES "Buyers Guide" standard set of terms and conditions for new subcontracts. Through interviews and a review of a subcontract with Creative Engineers for NaK Cleanup work, it was determined that the SAP system and the subcontracting process are being used to flow the DEAR clause down to subcontracts.

Responsibility is assigned within the ESG to the Environment, Safety and Health Manager to maintain the ISMS Description Y15-635PD, but it is not clear how the ISMS Program Manager ensures proposed changes to the document are properly reviewed and agreed to by the responsible organizations (see MG.1-4). The annual review and update process is described in Section VII.3 of Y15-635PD as being based upon the results of an annual ISMS assessment. LMES has done an internal independent assessment each of the last two years and has submitted annual updates in 1999 and 2000. The current version of Y15-635PD was approved by DOE on August 16, 2000, but there was no documentation of last year's annual update (October 15, 1999) approval by DOE. The contractor's business, budget and contracts integrated safety management processes are described in Section VII.1 of the ISMS Description document Y15-635PD. The "Define Scope of Work" part of this section describes and references the more detailed Y-12 budget and contract management procedures that are contained in Y30-600 and Y30-601. This section has been changed recently to describe the new mission support cost pool as a WAD which protects environment, safety and health requirements (makes it appear they are separate and not integrated). Mission support is in reality not a WAD and it is not clear that FBMO reviewed this change. Y30-600 and Y30-601 provide line managers the specific action steps they need to follow to prepare the BOE for their assigned work scope and the input to the WADs and BCPs. Previous versions of the ISMS Description document contained a more complete description of the business and budget functions in Appendix B which was highlighted as a Noteworthy Practice during the 1998 ISMS verification. Appendix B was removed from this most recent revision apparently without input and review by FBMO personnel. However, the BBC sub-team determined that the discussion in the ISMS Description document is adequate and appropriately references the four LMES manuals of practice (Y30-600, Y30-601, Y30-602, and Y30-604) for the business, budget, and contract functions which demonstrate integration of budget planning with the safety management system.

The contractor's ISM procedures and actions ensure that the personnel, including line management, who define, prioritize, and approve the scope of work and allocate resources have competence which is commensurate with the assigned responsibilities. The BBC sub-team determined through interviews that the Project Managers and Line Managers understood and utilized the BOE, WAD and BCP processes as they were described in Y30-600 and Y30-601. The qualifications of selected individuals were determined in the process of interviewing. The sub-team compared these qualifications to the requirements of the selected individuals' position descriptions. In addition, a subjective evaluation of competency was made by evaluating the responses given to questions during the interviews. The individual Project Managers and WAD Managers displayed detailed knowledge of the development and contents of their specific BOE and WAD documents.

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Conclusion and Summary: The criteria for this objective have been met.

#### Clear Roles and Responsibilities

The procedures associated with business, budget and contract functions delineate clear roles and responsibilities. The ISMS Description document Y15-635PD describes the ESG, lead by the General Manager, as senior line managers who are responsible for the execution of the business planning and budgeting process, including prioritization of tasks and resources. That work planning and budgeting role for the ESG is amplified and described in the ISM Program document Y15-636 to include reconciling the budget each fiscal year based on customer work scope requirements and ensuring resources are allocated to support the work scope authorized by the WADs in the contract. The Plan Management and Control procedure Y30-602 defines roles, responsibilities, and interaction activities for cost and schedule control of the work for both the Finance and Business Management Program personnel and the work managers.

#### Balanced Priorities

Based on the interviews that were conducted, the BBC sub-team determined that the contractor's procedures and actions for work planning and budgeting ensure balanced priorities between mission and safety expectations. The February 2000 joint effort with LMES and ODP to evaluate the budget year work scope at the more detailed project level and reach agreement on the prioritized set of projects is encouraging and will become more important in improving the strategic planning and extending the budget planning window. A cost object reconciliation model was also used this year to identify "over" and "under" liquidated tasks and to complete a labor reconciliation. The failure to complete this reconciliation in previous years had been pointed out in last year's ISMS self-assessment as a weakness. The prioritization process is most effectively implemented when the personnel involved in developing the BOEs and WADs communicate and work together as the process expects (see HAZ.1-1). The budget reconciliation process is directed by the ESG and is a process that culminates each fiscal year in a contract between LMES and DOE authorizing the Y-12 Plant to execute the work scope agreed upon in the WADs. The contractor and DOE need to strategically focus on the work scope planning process and extend the budget planning window beyond the current two year cycle. The budget year work plans need to be more accurately defined, prioritized and agreed upon with ODP since implementation of the new Congressional control points will reduce the ability to make changes once submitted (BBC.2-2).

#### Competence Commensurate with Responsibilities

The contractor's ISM procedures and actions ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence which is commensurate with the assigned responsibilities. Project Managers and Line Managers understand and utilize the BOE, WAD and BCP processes as they are described in the Y30-600 and Y30-601 manuals of practice. The individual Project Managers and WAD Managers displayed detailed knowledge of the development and contents of their specific BOE and WAD documents.

#### Define the Scope of Work

Mission expectations from DOE are translated by the LMES business processes into tasks with identified resource requirements, relative prioritization, performance measures and

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commitments. ODP provides expectations and guidance via written correspondence that establishes the basic work scope and priorities that LMES uses to develop its annual work definition and budget request contained in the WADs. Using a documented process, the Workplan Preparation and Administration procedure (Y30-600), LMES translates work expectations into tasks. Personnel in the program, production and services organizations (usually the Project Managers) develop a BOE that identifies the resources required for a particular task. The Project Manager incorporates safety resources into the BOE based on the work scope definition and input from service providers. Support ES&H personnel are consulted during the development of the BOE. Safety resources are planned and integrated with the production-related resources in the BOE. The BOE, WAD, and BCP processes have continued to mature into a useful requirements based budgeting approach that should be sustained through the upcoming contract transition (BBC.2-1).

**Noteworthy Practices**

BBC.2-1 The BOE, WAD, and BCP processes have continued to mature into a useful requirements based budgeting approach that should be sustained through the upcoming contract transition.

**Opportunity for Improvement**

BBC.2-2 The budget year work plans need to be more accurately defined, prioritized and agreed upon with ODP since implementation of the new Congressional control points will reduce the ability to make changes once submitted.

<div>Inspected by: _____ Joseph Arango</div>	<div>Approved by: _____ Joseph King ISM Team Leader</div>
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<b>Functional Area: DOE</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 25, 2000
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**OBJECTIVE: DOE. 1.** Define the Scope of Work: Missions are translated into work, expectations are set, tasks are identified and prioritized, resources are allocated. Appropriate DOE and Support Service Staff are available and appropriately allocated. (CR-2, CR-10, CR-13).

**NOTE**

*A portion of the DOE status for this objective will be reviewed and reported as a portion of CRADs BBC1 and BBC 2.*

Criteria:

1. DOE line management responsibilities for the definition of the scope of work is adequate to assure their responsibility for safety.
2. DOE roles and responsibilities are clearly defined and integrated to assure satisfactory level of safety, accountability, and authority to define the scope of work.
3. DOE procedures and practices assure that personnel who define the scope of work or oversee the contractor practices for defining the scope of work have competence which is commensurate with the assigned responsibilities.
4. DOE procedures for defining the scope of work assure balanced priorities for DOE personnel resources.

Approach:

Record Review: Review the Manual of Safety Management Functions, Responsibilities, and Authorities, Level II for Defense Programs, ORO M 411.1C (FRAM) and DOE-ORO Directives and DOE-ODP Operating Procedures (ODP). Determine if there is adequate guidance for DOE involvement in the clear definition of the scope of work. Determine how ORO/ODP integrates those functions within Y-12 that are the responsibility of contractors other than LMES. Determine if the mechanisms for translation of the missions and policies from higher authority are appropriate. Determine if the roles and responsibilities for DOE personnel are adequate to support the site mission. Verify that ODP line management and staff personnel roles, responsibilities, and authorities are appropriate to incorporate safety management as a key function in defining the scope of work. Review of mission prioritization procedures to determine if tailoring of resources is appropriate, will be accomplished by BBC team. Verification that procedures contain adequate standards selection, hazard controls and work authorization processes to support work planning and scope definition will be accomplished by HAZ team.

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#### Interviews:

Discuss the work scope definition process with DOE and contractor personnel to determine how the process works and how problems are resolved. Determine the DOE staff understanding of the ISMS process at Y-12. Verify that the Facility Representatives (FRs) and Subject Matter Experts (SMEs) understand their roles and responsibilities.

#### Observations:

Observe DOE and LMES interactions pertaining to the definition and prioritization of work scope at Y-12.

#### Records reviewed:

- Manual of Safety Management Functions, Responsibilities, and Authorities, Level II for Oak Ridge Operations, ORO M 411.1-1C , March, 2000 (FRAM)
- DOE-ORO Directives and DOE-ODP Operating Procedures (ODP), including the LMES Energy Systems Management Control, Energy Systems ISMS Description Y15-635PD
- U.S. Department of Energy, Office of Environment, Safety, and Health, *Y-12 Plant, Integrated Safety Management Evaluation Plan*, October 1998. U.S. Department of Energy, Office of Environment, Safety, and Health, *Integrated Safety Management Evaluation of the Y-12 Plant*, December 1998. DOE Office of Oversight, Environment, Safety, and Health: Integrated Safety Management Evaluation of the Y-12 Plant, and Detailed Corrective Action Plans for the DOE Office of Oversight, Environment, Safety, and Health: Integrated Safety Management Evaluation of the Y-12 Plant, Reports Y/AD-639 and Y/AD-640, Vols. I and II, March 1999
- U.S. Department of Energy, Oak Ridge Operations Office, *Performance Evaluation Plan for Lockheed Martin Energy Systems, Inc.*, Fiscal Year 2000
- Defense Nuclear Facilities Safety Board, DNFSB Recommendation 2000-2, *Configuration Management Vital Safety Systems*, March 8, 2000
- Correspondence between the U.S. Department of Energy, Defense Nuclear Facilities Safety Board (DNFSB), and Lockheed Martin Energy Systems, leading up to and related to the *Project Management Corrective Action Plan*, June 10, 1999; August 5, 1999; November 9, 1999; December 2, 1999; December 30, 1999; March 3, 2000; March 23, 2000; March 30, 2000; and April 3, 2000
- U.S. Department of Energy, Office of Oversight, Environment, Safety, and Health, *Field Report for the Oak Ridge Y-12 Plant Buildings 9212 and 9218*, January 2000;
- Department of Energy, *Final Report for Operational Readiness Review of Fissile Material Handling and Storage Operations at Building 9212*, March 31, 2000
- U.S. Department of Energy, *Oak Ridge Operations, Nuclear Criticality Safety Corrective Action Plan*, March 2000
- U.S. Department of Energy, Memo: Use of Office of Deputy Assistant Secretary for Research, Development and Simulation (DP-10) Construction Program Management Plan (CPMP), February 27, 2000
- U.S. Department of Energy, Office of Oversight, Environment, Safety, and Health, *Type A Accident Investigation of the December 8, 1999, Multiple Injury Accident Resulting from the Sodium-Potassium Explosion in Building 9201-5 at the Y-12 Plant*, February 2000

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- U.S. Department of Energy, *Readiness Assessment of the Resumption of Enriched Uranium Operations Metal Reduction Process at the Y-12 Plant*, Final Report, November 1999; Corrective Action Plan for Readiness Assessment Reduction Failure (ESAMS Printout), December 1999
- Y-12 Plant Nuclear Criticality Safety Committee, *Assessment Plan for the 1999 Annual Review of the Y-12 Plant Criticality Safety Program*, July 1999
- Defense Nuclear Facilities Safety Board, Various Letters and Attachments, DNFSB to Department of Energy, Related to Oak Ridge Y-12 Plant, January 1998—November 1999
- Defense Nuclear Facilities Safety Board, DNFSB Weekly Activity Reports, August 7, 1998—January 4, 2000
- Defense Nuclear Facilities Safety Board, DNFSB Staff Issue Reports, August 24, 1998—March 22, 2000
- U.S. Department of Energy, *Integrated Safety Management System Verification, Phase I and Phase II, Oak Ridge Y-12 Plant*, Volumes I and II, August 1998
- Defense Nuclear Facilities Safety Board, DNFSB Recommendation 98-1, *Resolution of DOE Internal Oversight Findings*, September 1998
- U.S. Department of Energy, *DOE Defense Programs Monthly Assessment Reports*, October 1998—May 2000

#### Interviews:

- EUO Restart Engineer (ODP)
- Manager ORO
- AMDP ORO
- NNSA/ODP Technical Division Director NNSA/ODP
- AM-ES&H and EM ORO
- NNSA/ODP Operations Management Division Director (Acting) and Facility Representative
- NNSA/ODP Programs Division Director
- Chief Staff Officer ODP
- RADCON Engineer ODP
- Criticality Safety Engineer ODP

#### Observations:

- ORO Manager's Senior Board Meeting
- ORO AMDP meeting with LMES President and General Manager
- DP-20/Y-12 Biweekly Teleconference

#### Discussion

The DOE and LMES evaluation of ISM implementation at Y-12 used the CCEs from Chapter 4 of DOE Guide 450.4-1A that were tailored to reflect ISM performance documentation. Special areas of interest were incorporated into the CCEs as appropriate to ensure the evaluation critically assesses those areas of Y-12 performance with identified ISM deficiencies.

The following paragraphs summarize interviews conducted.

- ORO Manager: The incumbent has been in place since July 1999, arriving with a diverse background in the Ohio and Nevada Operations Offices, as well as DOE-EH. The Manager

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holds frequent Assistant Manager (AM) staff meetings to identify issue and program progress, including monthly AM-meetings to track AM/program top priority accountability. She has encouraged new DOE hiring from sources outside ORO and DOE, and supports ODP supplemental staffing initiatives. The Manager has increased visibility/visitation to ODP indicating increased support to line management. It is uncertain what role the Manager will play with respect to the upcoming October 1, 2000 NNSA reorganization, or what transition planning is being undertaken to minimize this transition's adverse impact, which will be nearly simultaneous with the FY01 Y-12 contract award implementation.

- **ORO AMDP:** The incumbent has been assigned as ORO/ODP since the fall of 1999, but was not confirmed in his present position until May 2000. In his role as the DOE line manager having direct accountability for Y-12 safe operations, he has focused on improved working relationships between ORO, the Y-12 site office/ODP and LMES, and increased ODP senior management time in facility "Walkarounds." The AMDP has little need for integration of functions within Y-12 that are the responsibility of contractors other than LMES. There has been minimal interaction with UT-Battelle in Advanced Technologies and the Security Contractor, Wackenhut Corporation, since January 2000.

Minimal/marginal staffing has been allocated to the AMDP by DOE and ORO. Certain areas at Y-12 depend on sub-contractor (PAI) funding continuity. Thirty-seven FTEs were authorized at Y-12 as of August 2000, with approximately 34 in place and funded. DP/NNSA funds an additional 21 FTEs for ORO site-wide security, of which approximately 65% is necessary to support Y-12. Approximately 10 ORO matrix SME FTE technical positions are provided by ORO to support Y-12, while technically reporting for performance purposes to ORO. After the 1998 Y-12 ISMS-V where FRs and SME support were noted to be a strength, only 4 qualified FRs are in place at Y-12 currently. Additionally, 1 of the 4 currently-qualified FRs is transferring to Y-12 Weapons Quality imminently (see ODP Operations Management Division Director (Acting)/FR interview discussion below). Technical SME support areas as ODP Project Management, Fire Protection and Authorization Bases are in need of staffing support in order to improve line management ES&H oversight of the contractor. The ODP organization recommended an ODP realignment in April 2000 to provide increased direct technical support over a 5 year period reporting to Y-12 of up to approximately 85 FTEs. Six additional FTEs were identified to be needed in FY00 supporting such areas as Project Management and Authorization Basis. This support is urgently needed by ODP in order to meet near-term program and safety deliverables. The FY01 budget mark-ups however support only 37 FTEs, but assume FY01 transfer from ORO of 12 matrix positions to ODP/NNSA. In FY02, the proposed ODP realignment staffing identifies need for 69 FTEs at Y-12.

- **ORO AM-ES&H:** The incumbent is a long-term ORO AM in this area. Providing matrix support to ODP in the ES&H and EM areas, this AM indicates that accountability for ISMS implementation at Y-12 is a line ODP responsibility. Although FTE support is allocated to ODP, a lack of clarity in ORO roles/responsibility for ISMS implementation prevents more complete involvement by ORO ES&H personnel in ISMS implementation. Although the AM and his organization queries his ODP matrix support personnel as to adequacy of support

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provided, little proactive evidence is apparent in efforts to aggressively aid ISMS implementation at Y-12.

- **ODP Chief of Staff:** The incumbent is responsible as Compliance Manager for Y-12 Monthly Assessment Report (MAR) issuance, Deficiency Tracking System, Assessment/Self-Assessment/Management Walk-Around Scheduling/Tracking. Despite a minimal administrative staff supported by sub-contractor personnel, the incumbent aggressively pursues commitment tracking effecting definition/prioritization of ISMS scope of work.
- **ODP Operations Management Division Director (Acting)/FR, Materials and Mechanical Operations (MMO):** The MMO is one of four fully-qualified ODP FRs who will be transferring to ODP Weapons Quality in the near term for career progression. An excellent liaison process has been established with LMES, where this FR feels he receives ODP management support in the escalation of issues to LMES upper management. The inadequate number of qualified FRs at ODP is a problem that the AMDP is addressing through recruiting from both within ORO and from outside ORO and DOE.
- **ODP Technical Division Director:** The incumbent is new to this billet, but has been long-term ORO employee (on the Y-12 SEB for about the last 4 months). Maintaining the approximately 50% matrix ORO technical support organization challenges the ability of ODP to support FRs and oversee ISMS implementation. Despite this fact, the incumbent is aggressively attempting to meet technical support commitments necessary to establish the ISMS infrastructure, albeit with inadequate resources currently.
- **ODP Programs Division Director:** The incumbent is a long-term Y-12 key engineer recently promoted to this ODP leadership position. Managing program WADs for ODP, he is responsible to ensure that the Secondary Readiness Campaign and RTBF funding is properly identified in order that ISMS implementation progress is maintained. Although excellent communication channels are provided between DOE and LMES, the shortfall in ODP staffing significantly affects the ability of Y-12 line, program, and/or project oversight to succeed.
- **ORO Nuclear Criticality Safety Engineer:** One full-time ORO matrix support FTE is provided to Y-12 in this area. This SME understands DOE line ISMS roles/responsibilities. As a member of the ANSI/ANS 8.7 "Nuclear Criticality Safety in Storage of Fissile Materials" Standards Committee, his credentials in the technical community add to Y-12 credibility. However, his current workload may hinder completion of the commitment to finish Criticality Safety Qualifications by December 2000 (DNFSB Recommendation 97-2). ODP staffing support requires between 1 and 2 FTEs from the ODP PAI sub-contract in order to maintain adequate safety line oversight. ODP is looking to enhance staffing by 1-2 positions in the near term.

**ORO RADCON Engineer:** This SME provides full-time matrix support to Y-12. There is an excellent liaison process established with LMES, through ODP Technical Division Director,

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despite the fact that this SME works for the ORO AM-ES&H and EM. High-level performer and Leadership 21 Program selectee.

The following paragraphs summarize the observations.

- The ORO Manager's Senior Board meeting is an excellent forum for Assistant Manager (AM) integration across Program Secretarial Officer boundaries. For instance, during an ORNL Facilities Revitalization Strategy discussion, several lessons were shared among the AMs. The AMDP discussed an Authorization Basis (AB) subject matter lesson learned area (e.g., Y-12 Water Tower Use/EPZ impact), and the AM-ES&H and EM discussed NEPA concerns (e.g., Site-Wide EIS requirements beyond DP responsibilities). These cross-functional areas were shared with all AM's in the presence of the Manager, aiding integration of the ORO ISMS effort. It was not clear however, that action items requiring follow-up were tracked in an accountable manner. As of October 1, 2000 and the NNSA reorganization, this forum may not be available to the ORO Manager or ORO AMDP as an integration mechanism.
- The AMDP's weekly LMES President and General Manager meeting allows the DOE and M&O Contractor to discuss prioritizing efforts and redirecting work scope/definition to better address DP mission needs. Much of the discussion between DOE and LMES in this week's meeting dealt with follow-up from an AM-ODP facility "Walkaround" reactive management issues, such as responding to the July, 2000 S-1 letter to the Operation Offices following the LANL Type A investigation. The interchange between these top level Y-12 managers enhances the focus on teamwork. The ODP CSO attended this meeting to document commitments made.

Conclusion and Summary: The criteria for this objective have been met.

#### Clear Roles and Responsibilities

The records reviewed indicate adequate guidance currently for DOE involvement in the clear definition of the scope of work. The impact of the NNSA reorganization remains unclear for ORO/ODP, with no transition planning yet evident. ORO DP has minimal need for contractor integration functions within Y-12 beyond LMES, therefore no contractor integrating process was necessarily required of ODP or evident. The mechanisms for translation of the missions and policies from higher authority are appropriate, as evidence in Secondary Campaign and RTBF budgeting implementation. The roles and responsibilities for DOE personnel are minimally adequate to support the site mission. However, ODP line management and staff personnel roles, responsibilities, and authorities are not appropriate to incorporate safety management as a key function in defining the scope of work when considering the need to improve contractor performance in such safety functions as Authorization Bases, Fire Protection and Project Management (DOE.1-1).

Unless ODP staffing and RTBF funding is improved in FY01 and beyond, it is unlikely that the new Y-12 facility initiatives (Special Materials Complex, etc.), capability improvements (Saltless Direct Oxide to replace HF, etc.) or program support/life extension options (B61-11, etc.) can be effectively supported.

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DOE ISMS-related roles and responsibilities at ODP are complicated by matrix SME support relationships with the ORO. Certain ORO management defers line management work definition responsibilities to ODP, who is thereby solely responsible to clearly define and integrate work scope to assure a satisfactory level of safety, accountability, and authority. Little “shared vision/accountability” is evident between ORO support areas and ODP.

Line Management Responsibility for Safety

DOE line management responsibilities for the definition of the scope of work is adequate to assure their responsibility for safety. As discussed during the interviews above, although line management responsibilities for safe work scope definition may be met, the process to aid line management in making effective resource allocation prioritization decisions to avert safety challenges is not in place.

Competence Commensurate with Responsibilities

DOE procedures and practices assure that personnel who define the scope of work or oversee the contractor practices for defining the scope of work have competence commensurate with assigned responsibilities. Assigned ODP personnel are technically competent, albeit insufficiently staffed office-wide. Tremendous work-loads prevent effective implementation of line oversight by an inadequate ODP staffing situation that will only degrade during the NNSA transition unless senior management attention is provided to relieve the burden.

Balanced Priorities

DOE procedures for defining the scope of work assure balanced priorities for DOE personnel resources. However, with the limited ODP staffing and Secondary Readiness Campaign/RTBF budget, the ODP staff is continuously challenged with limited line oversight resources, to encourage LMES to improve effectiveness in safe program operations.

Issues:

Opportunity for Improvement

DOE.1-1     Y-12 ODP is marginally staffed for current and inadequately staffed for future planned work. Technical SME and qualified FR support must increase, with a clear transition plan for the NNSA reorganization in October 2000.

Inspected by: _____ David A. Chaney	Approved by: _____ Joseph King ISM Team Leader
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<b>Functional Area: DOE</b>	<b>Criteria Met</b> <u>  X  </u> Yes <u>      </u> No <b>Date:</b> August 25, 2000
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**OBJECTIVE: DOE.2** Operations Authorization: Readiness is confirmed and Authorization documentation is put into place in order to assure that work is performed safely. (CR-6, R-13)

**NOTE**

*A portion of the DOE status will be reviewed as a portion of the Hazard CRAD.*

Criteria

1. DOE line management responsibility for safety as reflected by clear roles and responsibilities includes responsibility to assure that readiness is confirmed and that work will be performed within the approved controls.
2. DOE procedures ensure that personnel who confirm work readiness, review or oversee the performance of work have competence commensurate with the responsibilities to which they are assigned.
3. DOE procedures ensure that work is performed within controls, and that conflict resolution is addressed within these procedures.
4. DOE procedures require readiness be properly verified and authorized before work commences.
5. DOE Procedures require authorization documentation including authorization agreements. The procedures describe the development and maintenance mechanisms for authorization documentation including authorization agreements.

Approach

**Record Review:** Review the FRAM to determine if there is adequate guidance for the authorization and oversight of work by DOE. Verify that those authorized to perform these functions have clear roles and responsibilities. Determine if the chain of command is clearly described. Verify that the FR and SME oversight program is tailored to match the work at individual facilities to which assigned. Determine if oversight policy is balanced with risk and the priority of the mission being performed. Determine the effectiveness of the oversight policy in selected operational facilities.

**Interviews:** Discuss work authorization and performance activities with the DOE and contractor personnel and determine if there are adequate mechanisms to assure that work is properly authorized at all levels. Determine if work safety is integral with work authorization methods and issue resolution. Discuss the systematic oversight of work with DOE and contractor personnel. Determine if oversight is consistent with DOE P 450.5.

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Discuss the FR program with the FRs and with contractor personnel to determine if it is effective. Include program management, oversight, and FR personnel with responsibility for individual facilities in the discussions.

Observations: Observe FR and SME oversight activities associated with specific individual facilities.

Records reviewed:

- ORO O 450, Chapter IV, *Environment, Safety and Health* (ES&H Oversight Program) December 28, 1999
- DOE O 425.1A, *Startup and Restart of Nuclear Facilities*, December 28, 1998
- ORO O 420, Chapter IX, Chg 2, *Startup and Restart of Nuclear Facilities*, April 30, 1999
- ORO O 420, Chapter IX, Chg 3, *Startup and Restart of Nuclear Facilities – Draft*
- YSO-5.4, *Suspension of Operations/Startup and Restart Readiness Evaluation*, April 1, 1999
- ORO M 411.1-1C, *Manual of Safety Management, Functions, Responsibilities and Authorities, Level II, for Oak Ridge Operations*, March 1, 2000 (ORO FRA)
- YSO.9.2, Rev. 2, *Contractor Oversight*, February 24, 1998

Interviews:

- YSO staff (various)
- YSO Facility Representatives
- ORO staff (various)
- Assistant Manager, Environment, Safety, Health, and Emergency Management
- Lead, Quality Management Team

Observations: None.

### **Discussion**

ORO has developed a draft directive that will implement the requirements of the about-to-be issued DOE O 425.1B. This directive is being shared with appropriate Headquarters staff to assure that those subjects associated with the startup/restart process that require attention are adequately addressed. The ORO FRA discusses the role of line management in the startup/restart process (DOE.2-1).

The delegation of authority related to this topic was discussed. The Manager, on a case by case basis, delegates authority to the line manager.

The YSO Facility Representative program has played a significant role in the operations of the Y-12 plant. This program has been noted to be a strength in previous reviews. Due to recent transfers and promotions, the number of Facility Representatives is less than that required to oversee operations. New Facility Representatives are being vigorously recruited. It is expected that there will be several replacements brought on board in the near future. Although the Facility Representatives are performing superbly, there is a lack of formal processes to facilitate the transition by the new staff. The facility representatives play a key role in the AMDP's effort to implement P450.5.

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In addition, in conjunction with the transition to the NNSA, the total staff assigned to YSO has been evaluated. An aggressive plan is in place to increase the size of the staff commensurate with the responsibilities. The details of the transition are still evolving.

Conclusion and Summary: The criteria for this objective have been met.

Clear Roles and Responsibilities

The efforts related to revising the startup/restart order will add clarity to expectations and the roles of the staff (DOE.2-1).

Inspected by: _____ Joseph King	Approved by: _____ Joseph King ISM Team Leader
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<b>Functional Area: HAZ</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 30, 2000
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**OBJECTIVE: HAZ.1:** ISMS procedures and mechanisms are in place to ensure that hazards are analyzed, controls are developed, and that work is formally and appropriately analyzed and performed safely. Line managers are involved in the review of safety issues and concerns and have an active role in authorizing and approving work and are using these processes effectively, consistent with LMES requirements. These Objectives are to be applied to both nuclear and non-nuclear facilities and operations, to the extent applicable. (CCE-7 and CE II-3)

Criteria

1. The contract reflects the current updated SRID requirements.
2. Changes to the standards and requirements, including mission changes, are identified and implemented.
3. Facility Authorization Basis documentation has been developed and is maintained as current.
4. Mechanisms are in place to effectively and accurately implement all aspects of the Authorization Basis.

Approach

Record Review: Review contract and SRIDs to verify applicable standards for developing and maintaining Authorization Basis documents. Review process for updating SRIDs, and any documents relating to changes. Review the annual updates to the contract safety performance objectives, measures, and commitments. Review DOE program and budget execution guidance with regard to development and implementation of Authorization Basis documentation.

Review the list of Y-12 hazardous nuclear and non-nuclear facilities and the status of the related Authorization Basis documentation for these facilities.

Review the specific standards applicable to development of nuclear and non-nuclear Authorization Basis documents, as identified in SRIDs and flowdown implementing guidance.

Review SARs, TSRs, SERs, and Authorization Agreements that have been developed over the past two years or are in preparation or approval status. Determine whether or not the applicable standards and guidance have been followed. Review the annual contractor organizational plans for accomplishing the related safety commitments to DOE and the project plans for the individual documents. Determine whether the plans and schedules have been followed, and if not, why not.

Review USQ process and a selection of USQDs for the past year.

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Interviews: Interview facility personnel responsible for SAR/TSR development projects and implementation of SARs and TSRs at the facilities (Safety Analysis Basis Information Forum (SABIF) Chairman, Nuclear Safety Organization Manager, Safety Analysis Manager, YSO Authorization Basis Manager, SAR Program Manager).

Interview project managers and project personnel responsible for development of SARs and TSRs.

Interview personnel responsible for SRID maintenance and revision (Nuclear Safety Organization (NSO) Compliance Manager).

Interview USQD personnel (Nuclear Operations USQD Manager (OSB Member), EUO USQD Manager (OSB Member)).

Observations: SAR/TSR Development Planning and Scheduling Meeting  
SAR Development Team Meeting (if available)  
TSR Development Team Meeting (if available)

Records reviewed:

- Y15-635PD, Energy Systems Management Control, 7/27/00
- Y15-636, Integrated Safety Management Program, 4/25/00
- Facility Safety Division (FSD) Integrated Safety Management Self Assessment Report, 8/2/00
- ES/ESH-67, Implementation Plan for DOE Orders 5480.23 and 5480.22 (including supporting cost and schedule details supplement), Rev. 8, 6/00
- Implementation Plan for Preparing Authorization Basis Documents for Nonnuclear Facilities, 6/30/00
- Y/FSD-5, Assessment of Potential Vulnerabilities Due to Degraded High Efficiency Particulate Air Filters in Nuclear Hazard Category 1, 2, and 3 Facilities at the Y-12 Plant, 6/00
- Investigation Summary, Lockheed Martin Energy Systems Quality Assurance Issues at Y-12 Site, U.S. DOE Office of Enforcement and Investigation, 5/12/00
- Creative Engineers, Inc. draft outline of NaK Cleanup Project, Process Hazards Report, 8/3/00
- Y/AD-642, Response to the DOE Type A Accident Investigation of the December 8, 1999 Sodium-Potassium Explosion at Building 9201-5 Y-12 Plant, 3/15/00
- 9204-2E OSB Meeting Log 028; Meeting Notes (and back-up material), 8/7/00
- Y/FSD-8, Task Plan for the 9720-18/18-22 Complex Basis for Interim Operation(BIO) Upgrade and Operational Safety Requirements (OSRs), Rev. 0, June, 00
- Y/OA-6520, Implementation Plan for 9204-2E Facility Safety Analysis Report and Technical Safety Requirements, Rev. 0, 2/00
- Y/MCO-11, Operational Safety Board Charter, Material Control Organization (MCO), Rev. 0, 7/00
- Several Unreviewed Safety Question Determinations and Change Evaluation Worksheets (USQD-like documents for chemically hazardous facilities)

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- Y/DD-929, Y-12 Plant Nuclear Criticality Self-Improvement Initiative Response, Rev. 0, 2/00
- CCG-360, Graded Response to Finding Non-Fissile Materials in Non-Solution Storage Arrays or Workstations, Rev. 0, 7/14/00
- Y-12 SSC Classification (viewgraph presentation), 7/6/00
- Quality Management at Y-12 (viewgraph presentation), Spring, 00
- Memorandum, Moseley to senior management distribution, Quality Plans, 5/31/00
- Y74-800PD, Facility Safety Program, 2/25/00
- Y74-803, Authorization Basis Documents for Chemically Hazardous Facilities
- Y74-801INS, Hazard Identification, 3/1/00
- Y74-48-xxxINS, several FSD Work Instructions
- Facility Safety Division Administrative Guide (draft), 7/13/00
- Lockheed Martin Energy Systems Integrated Safety Management System Independent Assessment, 8/99
- Safety Authorization Basis Information Forum Charter, 9/00
- Key Inputs and Assumptions Panel (KIAP) Charter, 4/00
- Unreviewed Safety Question Forum Charter, 9/98
- Y74-001, Authorization Agreements, 1/11/99
- Y74-809, Unreviewed Safety Question Determinations, 9/13/99
- Y79-54-FPE-026, Fire Hazard Analysis, 6/21/00
- EMPO-558, Oak Ridge Y-12 Plant Emergency Management Hazards Assessment Process, Rev. 3, 8/00
- Y/MA-7254, The Basis for Interim Operations for Building 9212 Enriched Uranium Operation Complex, Rev. 7, 1/00
- FY 2001 Stockpile Management Program Cost Estimate, Defense Programs Facilities, 6/00
- USQ Forum Minutes (May, June, Aug., 2000)
- Safety Authorization Basis Information Forum Minutes (March, May, June, 2000)
- Key Inputs and Assumptions Panel (KIAP) Summaries or Minutes of Meetings (4/24/00, 6/22/00, 7/14/00)
- DNFSB Staff Issue Reports relating to safety basis issues at Y-12, 6/12/99, 3/8/00
- Letter, Bergin to Brumley, Subject: DNFSB Review of the Status of Safety Analysis and Safety Analysis Documentation Supporting Nuclear Operations at the Y-12 Plant, 3/23/00

#### **Interviews:**

- Manager, FSD
- AB Production & Support Manager, FSD
- Policy Program Development & Improvement Manager, FSD
- Staff Members, FSD
- Project Planning Support Engineer, Materials and Mechanical Operations
- Shift Technical Advisor, Materials Control Organization
- Manager, Nuclear Criticality Safety Division
- Facility Safety Engineer, Assembly Facilities
- Facility Safety Engineer, EUO
- Manager, Emergency Preparedness Organization and staff members

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- Director of Quality (acting); Manager, Independent Assessments and Analysis
- Manager, Fire Protection Operations

#### Observations:

- Meeting, DOE, LMES FSD, LMES Engineering, Confinement for the HEUMF, 8/15/00
- FSD staff meeting, 8/15/00
- FSR SER review meeting, 8/15/00
- LMES-DOE meeting on safety basis plan for HEUMF, 8/16/00
- FSD “Daily” Status Briefing, 8/17/00
- NaK Hazard Evaluation Study “Kick-off” meeting, 8/17/00
- HEUMF Plans Review Meeting, 8/22/00

#### Discussion

##### S/RIDs, WSS and Implementing Procedures

DOE Contract DE-AC05OR21400 includes List B (S/RIDs). An inspection of the applicable S/RIDs germane to the Safety Analysis (SA) functional area revealed that DOE Orders, 5480.21, 5480.22, 5480.23, 5480.24 (partial), and 420.1 (partial) have been invoked for nuclear facilities. DOE Order 5481.1B has been invoked for the hazard identification and analyses for non-nuclear hazardous facilities.

Crosswalks for S/RIDs sections 18.3 (Safety Analysis) and 18.4 (Technical Safety Requirements (TSR)) were examined. The crosswalks identified the specific requirements relating to SA and TSR contractual requirements and linked these requirements to the LMES command media implementing procedures. Several implementing procedures were reviewed against the crosswalk and were determined to adequately implement the related S/RIDs. This mechanism adequately demonstrates the flow down of contractual requirements into the contractor’s implementing procedures.

The Engineering Work Smart Standards set (WSS) invokes Order 420.1, section 4.1, Nuclear and Explosive Safety Design Criteria. Because it integrates safety analyses with the design process, it probably should also be in the Safety Analysis functional area of the S/RIDs. The Engineering WSS set has not been updated since 1997 and it probably needs to be evaluated to ensure it reflects current standards.

##### Implementation Plans and Budget Coordination

An ongoing concern with the process of upgrading, updating, and maintaining nuclear facility Safety Authorization Basis documents (Safety Analysis Reports (SARs) or Basis of Interim Operations (BIOs), TSRs or Operational Safety Requirements (OSRs), and the related DOE Safety Evaluation Reports (SERs)) has been that progress has been slow and commitments in annual plans have not been met. ES/ESH-67 establishes the IP for complying with DOE Orders 5480.23 and 5480.22. The IP has been approved by the AMDP and includes revised schedules and costs for the preparation of tailored SARs and their associated TSR documents for nuclear facilities operated by LMES. The plan contains details on the timing and funding estimates relating to the development of upgraded Basis of Interim Operations documents and SAR/TSRs development. The plan indicates the completion of developing/upgrading BIOs in FY-2001, and

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the completion of SAR/TSR development in FY-2005. The plan indicates SAR/TSR submittal dates are based on allocation of resources (funding and key personnel) and a qualitative risk prioritization based on hazard category, facility and hazard complexity, and rigor of existing safety documentation. To accomplish this work, the Facility Safety Division utilizes an integrated work plan, and develops technical task plans, to manage the overall workload of the organization. The latest revision, Revision 8, of the IP reflects plans for FY 2001. Finalization of budget planning and allocation of resources is ongoing. The IP and supporting information are in fairly good detail (on task breakdown level for document development and preparation) to support the budget estimates. In some cases, for example the Natural Phenomenon Hazard (NPH) studies related to the 9212 SAR, are not apparent in the IP, but interviews with Facility Safety Division (FSD) personnel provided the supporting rationale. In the immediately preceding years (FY 99 and 00) the LMES ISMS Independent Assessment (8/99) observed that the reconciliation process between the Basis of Estimate (BOE) and the budget allocation was not completed. This resulted in a mismatch between resources to do the work and commitments in the IP. This was especially exacerbated in FY 2000, because funding was cut off for AB work in mid year to make up for unfunded directed work for EUO resumption. The technical effort associated with two SAR and BIO update efforts in the IP were not found (9731, 9720-27).

Authorization Basis documents for non-nuclear facilities are also being prepared. SARs, based on DOE-STD-3009, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports, are prepared for PSM/RMP facilities. Hazard Evaluation Reports (HERs) are prepared for Chemically Hazardous facilities. Y74-803, "Authorization Basis Documents for Chemically Hazardous Facilities" delineates requirements for preparing, approving, revising, and implementing AB documents for facilities classified as Chemically Hazardous through application of Section II of Y74-800PD. The procedure also defines the process for evaluating proposed changes and discovery conditions affecting Chemically Hazardous Facilities which consists of developing Hazard Evaluation Reports and the identification of Safety Significant SSCs for non-nuclear safety (SS<sub>nm</sub>-SSC.)

An IP for preparing AB documents has been developed. While the plan identifies the status of facility classification, hazard assessment status, existing AB documents and type document planned to be prepared, the IP lacks sufficient detail to prioritize and resource load the effort needed to achieve the identified need. However, earlier input to BOE preparation indicated a need for funding ten HERs. Upon examination of the FY 2001 Facilities BOE, the technical effort and estimates for only one HER was found. While the preparation of the IP and the BOE for Facilities is an improvement from past practice of funding on the basis of previous year levels, if the integrity of the process is not maintained and the facilities' AB work is not consolidated, the problem of failing to meet schedule commitments for AB documentation will continue (HAZ.1-1).

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#### Operations of the Facility Safety Division (FSD)

In response to safety performance deficiencies, LMES recognized the need to strengthen the capability of the plant to provide adequate technical bases for Y-12 operations, facilities, systems, and projects. To respond to this need LMES conducted reorganization in the spring of 2000 creating the Technical Operations organization which reports directly to the LMES President and General Manager. The mission of Technical Operations is the technical and design authority for Y-12 Plant operations. LMES' intent is to have a single source authorization of the technical information that is adequately researched, correct, and current. Within the Technical Operation organization, the FSD is charged with the development and maintenance of safety basis documentation and has the principal responsibility for, Y74-800PD, "Facility Safety Program." Procedure Y74-800PD specifies requirements, roles, and responsibilities for implementing the Facility Safety Program and implements Environment, Safety, and Health requirements identified in Chapter 18, "Facility (Nuclear) Safety," of LMES' S/RIDs.

Essential elements in successfully meeting AB commitments are that the operations of the FSD be well planned and disciplined in execution. It is noteworthy that the Division is in the process of developing work instructions (Y74-48-xxxINS) and has task plans for AB projects. This is an effort to better control the accomplishment of work in accordance with commitments and to provide a training vehicle for new staff (HAZ.1-2). They could also be key elements of a Division level Quality Assurance Plan. However, those reviewed as part of this verification effort appeared rather rudimentary and of limited usefulness in a disciplined approach to ensure the quality of the work and in maintaining schedule commitments. For example, a project task plan should include a subtask breakdown. The subtask plans should identify all personnel performing work on that subtask, the inputs required to perform the work and sources of those inputs along with dates expected, a description of the work to be done and the product, the level of QA checking required and who will perform that, and the completion date. These task and subtask plans should be signed by all that are involved, indicating their agreement to meet the commitments implied. Without this level of detail, the task plan is only a description of what needs to be done, and not an effective management tool to ensure that it is accomplished in accordance with the IP (HAZ.1-3).

The cut off of AB funding in mid FY 2000 required the termination of some FSD personnel and of supporting subcontract work. Since the last ISM verification, the reorganization also resulted in Facility Safety Engineers, who had previously been assigned to the operating organizations, being reassigned to FSD. Currently, there are only two Facility Safety Engineers actually resident at facilities. FSD personnel continue to perform support functions for the facilities, but because of the limited FSD staff, the level of involvement with operations is necessarily limited. The Manager, FSD, estimates he needs to hire three to five new senior level facility/safety engineers. Timely reinstitution of subcontract support, hiring new FSD personnel, and integrating these resources into the technical effort are essential for the accomplishment of the FY 2001 IP commitments (HAZ.1-4).

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#### Institutional Programs

FSD has responsibility for the Unreviewed Safety Question (USQ) process at Y-12. Operating organizations each have a USQ Manager, and Unreviewed Safety Question Determinations (USQDs) are performed by facility staff and reviewed by the Facility USQ Manager. FSD provides support by advising on difficult issues and arranging for training. Additionally, USQD Forums are conducted. Minutes taken from these forums indicate the participation of relevant USQD reviewers, and contained sufficient information to discern the discussion of relevant USQD topics. However, FSD does not review, nor normally receive copies of USQDs. No sitewide checks of the quality of USQDs have been made by FSD. It is recommended that FSD institute a program of periodic assessments of the quality of USQDs being performed by the operating organizations (HAZ.1-5).

Both the USQ process and the OSBs are important to maintenance of operations within the safety bases established by Authorization Basis documents. The team's observations (limited) of OSB meetings and examination of minutes of OSB meetings gives concern that the rigor and formality of conduct of the meetings and the documentation of the issues addressed, action items, and decisions made is lacking (HAZ.1-6). Proper application of the USQ process and the OSB may have provided opportunities for avoidance of the NaK accident. Regular self-assessments of the operations of OSBs should be instituted to assure their quality and uniformity of performance throughout the site.

#### Relationships Between Hazards Analyses for Authorization Basis Documents (SARs, BIOs), Emergency Planning, Fire Hazard Analyses

The hazard identification process has been made common between the Emergency Preparedness Organization and FSD. Procedure Y74-801INS is the Hazard Identification procedure and provides the hazards data for supporting facility hazard classification and the development of Authorization Basis documents, Emergency Management Hazards Assessment (EMHAs), and FHAs. Staffs from both Emergency Management and FSD participate in the walk downs and preparation of the listing of hazardous materials according to Y74-801INS.

Procedure EMPO-558, "Oak Ridge Y-12 Plant Emergency Management Hazards Assessment (EMHA) Process" establishes requirements and standard methods for the development and maintenance of the EMHA process. EMHAs are done for all Category 2 and 3 nuclear facilities. The EMHA process uses three elements: Hazards Identification, Hazards Survey, and Hazards Assessment, and is sufficiently detailed to ensure consistency between EMHA efforts. The procedure also identifies existing SME, BIO, SAR, vulnerability assessments, records and databases as sources of information from which to identify hazardous materials that will be stored, processed, or created in a facility. Generic guidance is offered to consider other safety documentation (SAR, BIO) in progress and a desire to integrate these with the EMHA schedules to increase efficiency and reduce cost. Additionally, the procedure generically encourages standardization of release parameters and analysis techniques where possible but offers no specifics that would assist the EMHA analysis in doing so. Differences from SAR/BIO preparation hazard/accident analyses are:

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- EM analyses include scenarios for sabotage and beyond DBA accidents, which SARs/BIOs do not.
- EM analyses are based on unmitigated accidents (used only for Safety SSC classification in SARs/BIOs).
- Accidents carried forward in descriptive documents are screened on the basis of need for protective actions (SARs/BIOs are carried forward on the basis of identifying the need for Safety SSCs).
- EM analyses differ in the assumptions for accident severity. For example, for tornadoes, EM analyses use a maximum wind of 150 to 200 mph, whereas SAR/BIO analyses use 90 mph. EM fire analyses include a worst case (no fire protection) and a working structural fire (release of material from the facility).
- Initiating events are common with Fire Hazard Analyses (which are used in SAR/BIO development), but fire progression analyses are different. Airborne release fraction assumptions for both SAR/BIO and EM analyses use the methodology in DOE-STD-3010.
- EM dispersion analyses use different models than SAR/BIO analyses, but both are Gaussian plume models. EM atmospheric condition assumptions include both a typical (D stability, 3 mps) and conservative case (F and 1), whereas SAR/BIO uses the conservative conditions.

For the most part, the differences outlined above have good rationales. Emergency management analyses are focused on assessing the type and need for protective actions, whereas the SAR/BIO analyses are focused on the safety attributes (safety SSCs and safety management programs) needed for safe operations. There may be potential efficiencies to be gained organizationally in accomplishing the analyses. The YSO has volunteered Y-12 to participate in a pilot project with the objective of developing a DOE Standard that would provide guidance and rationalization for safety analyses that are routinely done throughout the complex for various different needs (SAR/BIOs, FHAs, Emergency Management, NEPA documents, Criticality Safety Evaluations, etc.). The HEUMF project is being considered for the pilot project (HAZ.1-7).

Procedure Y79-54-FPE-026, "Fire Hazard Analysis," establishes criteria and provides guidance for the preparation of FHA applicable for existing facilities only and does not apply to temporary and/or new structures. The techniques described in the procedure provide adequate guidance for the development of FHAs. Integration with other facility safety hazards analyses and safety basis documentation is limited to the inventory of the safety class equipment located within the fire area susceptible to fire damage and an valuation of the adequacy of the fire protection equipment provided to protect "safety class" equipment, as identified in the SAR for the facility.

Conclusion and Summary: The Criteria for HAZ.1 have been met.

#### Define the Scope of Work, Line Management Responsibility for Safety

Line managers are involved in the review of safety issues and concerns and have an active role in authorizing and approving work. However, there is evidence that the coordination between the preparation of implementation plans and supporting details for AB work and the final budget reconciliation process has not and is not functioning well. This has historically led to continued

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delay and if not corrected this will continue to lead to failure of meeting AB development commitments. (HAZ.1-1)

#### Analyze the Hazards, Operations Authorization

ISMS procedures and mechanisms are in place to ensure that hazards are analyzed, controls are developed, and that work is formally and appropriately analyzed and performed safely. The contract includes S/RIDs and WSS and there are procedures in place and functioning to ensure the proper flowdown of these into LMES implementing procedures. While line managers approve safety documents for nuclear and non-nuclear chemically hazardous facilities, LMES has not yet achieved full compliance with AB documents order requirements.

#### Perform Work Within the Controls, Balanced Priorities

The Facility Safety Engineer was favorably recognized in the first Phase II verification as providing a function important to the maintenance of facility operations within the Safety Authorization Basis. The FY 2000 budget adjustments on AB work, including the Facility Safety Engineer function, negatively impact the level of in-facility AB related support to operating organizations by FSD. (HAZ.1-4)

The Facility Safety Division is in the process of developing work instructions and task plans for AB projects to better control the accomplishment of work in accordance with commitments and to provide a training vehicle for new staff. However, these work instructions and task plans need to be more comprehensive in order to serve as management tools to ensure a disciplined approach to meeting IP commitments. (HAZ.1-3)

#### Provide Feedback and Continuous Improvement, Clear Roles and Responsibilities

The effective use of OSBs is important to maintenance of operations within the documented safety basis of a facility. OSBs were observed to be lacking in formality and discipline, and the effectiveness in supporting hazards identification and control are not regularly self assessed. (HAZ.1-6)

Similarly, there is no sitewide audit program of the quality of Unreviewed Safety Question Determinations being performed by operating organizations. FSD, as the responsible organization for the USQ procedure, has not instituted an audit program that would assess the quality of USQDs across the site. (HAZ.1-5)

#### Noteworthy Practices

HAZ1-2 It is noteworthy that the Facility Safety Division is in the process of developing work instructions (Y74-48-xxxINS) and has task plans for AB projects. This is in an effort to better control the accomplishment of work in accordance with commitments and to provide a training vehicle for new staff.

HAZ1-7 The HEUMF project is being considered for a pilot project with the objective of developing a DOE Standard that would provide guidance and rationalization for safety analyses that are routinely done throughout the complex for various different

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needs (SAR/BIOs, FHAs, Emergency Management, NEPA documents, Criticality Safety Evaluations, etc.).

**Opportunities for Improvement**

- HAZ1-1 There is evidence that coordination between the preparation of Implementation Plans and supporting details for AB work and the final budget reconciliation process is not functioning well, which could lead to continued failure of meeting AB development commitments.
- HAZ1-3 Work instructions and task plans are not yet sufficiently comprehensive to be able to serve as management tools to ensure a disciplined approach to meeting IP commitments.
- HAZ1-4 The staff of FSD and contractor support is currently below that necessary to support the IP and to provide the Facility Safety Engineer function, which is important to the maintenance of facility operations within the Safety Authorization Basis.
- HAZ1-5 There is no sitewide audit program of the quality of Unreviewed Safety Question Determinations being performed by operating organizations.
- HAZ1-6 The effective use of OSBs is important to maintenance of operations within the documented safety basis of a facility. These operations appear to be lacking in formality and discipline.

<p>Inspected by: _____ Richard Englehart _____ Douglas Dearolph</p>	<p>Approved by: _____ Joseph King ISM Team Leader</p>
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<b>Functional Area: HAZ</b>	<b>Criteria Met: <u>X</u> Yes    ___ No</b> <b>Date: August 23, 2000</b>
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**OBJECTIVE: HAZ.2:** DOE ISMS procedures and mechanisms are in place to ensure that hazards are analyzed, controls are developed, and that work is formally and appropriately analyzed and performed safely. DOE line managers are involved in the review of safety issues and concerns and have an active role in authorizing and approving work and are using these processes effectively, consistent with DOE Field Office FRA and DOE FRAM requirements. These Objectives are to be applied to both nuclear and non-nuclear facilities and operations, to the extent applicable. (CCE-10, -11 and CE II-7, -8)

Criteria

1. Safety performance objectives, performance measures, and approved contractor safety commitments have been formalized in guidance to contractors.
2. Guidance to the contractor (in 1.) focuses on the site's most risk significant safety vulnerabilities (e.g., safety support program deficiencies, maintenance of site infrastructure, corrective actions resulting from internal and external oversight).
3. The DOE Field Office FRA clearly assigns responsibilities for Authorization Basis document reviews.
4. There are procedures for review and update of List B (S/RIDs) of the contract.
5. There are procedures for SAR and TSR reviews and review plans, and they are being implemented.
6. Mechanisms are in place to track Facility Authorization Basis status and they are current.
7. Mechanisms are in place to assure Facility Authorization Bases are implemented.

Approach

Record Review: Review annual safety guidance and back up documentation to contractors to evaluate the processes used to prioritize safety tasks and that they are formalized.

Review the DOE Field Office FRA and the procedures for updating SRIDs and for SAR and TSR reviews, including annual updates. Review Task Plans for SAR/TSR reviews and records of reviews for recent contractor submittals. Review associated SERs. Review Authorization Agreements. Determine if procedures and plans are being followed.

Review records of Authorization Basis status for Y-12 facilities. Determine if status is current, and if not, why not.

Review records of positive USQD related requests for approvals and DOE responses.

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Interviews:

1. Interview DOE personnel responsible for coordinating DOE SAR/TSR reviews.
2. Interview lead DOE review managers.
3. Interview review team members and Facility Representatives.
4. Interview personnel responsible for acting on positive USQD related requests for approvals.
5. Interview personnel responsible for updating SRIDs. (YSO Work Smart Standards Manager, YSO S/RIDs Manager, ORO Standards Manager)

Observations: None.

Records reviewed:

- Position Description, Authorization Basis Program Director
- Contract Requirements Document (draft), HEUMF
- ORO Order 250 Chapter IV, Contract Appendix and Impact Assessments, Change 1, 12/13/99
- ORO Order 250 Chapter VII, Maintenance of Standards/Requirements Identification Documents, Change 1, 1/16/00
- Engineering Design and Construction Work Smart Standards for Environmental Safety and Health, 3/97
- YSO-5.20, Review of Authorization Basis Documentation, Rev. 0, 1/00
- Several SERs related to approvals of SARs, TSRs, BIOs, OSRs, and proposed actions related to USQs
- Safety Analysis Report Review Plan for the 9204-2E Facility At The Y-12 Plant, August 1998
- SER Conditions Status Database records
- YSO-5.3, Authorization Agreements, Rev. 0, 01/00
- 9204-2E-AA, Authorization Agreement for the 9204-4E Facility, Revision 1, 11/99
- 9212-EUO-AA, Authorization Agreement for the 9212 Facility, Revision 3, 11/99
- YSO-1.2, U.S. Department of Energy Office of Defense Programs Operating Procedure Manual, Rev.4 (Amendment 1) 07/13/98
- YSO-9.2, Contractor Oversight, Rev. 2, 02/98

Interviews:

- Defense Programs, Assistant Manager
- Program Manager, Authorization Basis
- Facility Representative
- Program Manager, Program Management Division
- Industrial Hygienist, Technical Division
- Program Manager, Criticality Safety
- Management Analyst, Financial Evaluation and Accountability Division
- Senior Fire Protection Engineer
- Team Leader, Directives Management Group, ORO
- Program Manager, Emergency Management Program and Chemical Safety Program
- Process Engineer, Chemical Safety Processes; Liaison to DNFSB

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- Contract support personnel

### Observations:

- Facility Safety Status Meeting
- Meeting, DOE, LMES FSD, LMES Engineering, Confinement for the High-Enriched Uranium Materials Facility (HEUMF)
- LMES-DOE meeting on safety basis plan for HEUMF

### Discussion:

#### Implementation Plans and Budget Coordination

As with the HAZ.1 CRAD, the coordination of the scope of work for safety Authorization Basis (AB) work with the funding resources is of concern. The YSO AB Manager interfaces with the Program level budget preparation process only indirectly. Discussions between the contractor Facility Safety Division (FSD) Manager and the YSO AB Manager are held to identify and prioritize both overhead (facility operational) support functions and safety AB development work for the year. These discussions resulted in an Implementation Plan, which is used by the AB Manager both to input information to Program Managers responsible for facilities (for preparation of their Work Authorization Documents (WADs) that fund the AB work) and as performance indicators for the Contract. The contractor FSD Manager also uses it as input to the Facilities Basis for Estimate (BOE). AB preparation associated with facilities other than key production facilities is in other BOEs. There is an opportunity for improvement for effective participation by the YSO AB Manager in the evaluations of contractor BOE and adjustments thereto. In discussions with the involved individuals, on both sides, it was discovered that funding cuts and scope adjustments in AB work have been made by contractor budget and facilities personnel without the participation by either the contractor FSD Manager or the YSO AB Manager. While these documents are not yet finalized for FY 2001, it appears that the process for arriving at an agreed upon scope and funding, and appropriate coordination with Contract Performance Indicators is not yet sufficiently evolved to ensure adequate participation and to achieve the necessary integration (HAZ.2-1).

#### Safety Authorization Basis Documentation

Within the YSO organization, ORO M 110, *Functions and Responsibilities Manual*, assigns the Technical Division the responsibility for maintaining the AB for facilities and processes and ensuring these documents meet DOE requirements. Within the Technical Division, the YSO AB Manager executes this responsibility by conducting reviews of all SARs, TSRs, BIOs, OSRs and by preparing all associated Safety Evaluation Reports (SERs.) These tasks are accomplished with very limited contract support (one person), an assigned Facility Representative, additional subject matter experts on the YSO staff or matrixed from ORO, and some occasional support from DP Headquarters (DP-45). With the exception of the contract support person, the task to support the AB Manager in these review efforts is secondary to the primary duties assigned to the other reviewers. YSO's resources available for the AB review function are considered light when compared to those at other DOE sites for the same function. This results in less DOE interaction with the contractor at key points during the preparation of SARs and BIOs, such as participation in contractor Key Input and Assumptions Panel (KIAP) meetings, in accordance with the guidance of DOE-STD-1104, and as specified in YSO-5.20. Additional dedicated YSO

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staff resources could facilitate a higher level of interaction during AB development and lead to more efficient document reviews and approvals. Notably, the contractor's project plans include the assumption that DOE reviews and resolution of comments will take place within a period of 60 days of submittal. Given YSO's current resources, this assumption is unrealistic, but the draft YSO procedure for reviews (YSO-5.20) included that goal until being deleted during editing. The level of detail of the reviews as described in SERs reflects that the level of scrutiny of AB documentation is limited. YSO has recently been averaging the processing of approximately two SERs per month. This workload reflects the development of new documents, annual updates to documents, and changes invoked from Unreviewed Safety Question (USQ) actions. Considering the magnitude and importance of the function, the YSO resource allocation for review and approval of the safety bases is not adequate to ensure success in the planned AB upgrade efforts (HAZ.2-2).

Procedure YSO-5.20 requires the development and use of review plans for SARs submitted by the contractor. A review of the review plan for the 9204-2E facility was conducted. The review plan details the process for the conduct of the review, provides the criteria for acceptance, assigns responsibilities, describes the format and content of the SER, and provides a schedule for the conduct of the review. The plan, dated August 1998, is considered to be adequate for supporting a SAR review, but it does not appear that it has been reviewed for currency since its approval two years ago. The execution of the review has experienced difficulties and has been characterized as disjointed and lengthy. The AB Manager has indicated that there have been difficulties in achieving a dedicated DOE review (use of matrix and HQ personnel) and in resolving DOE comments from the review of the submitted SAR. Presumably, the contractor's loss of sub-contract personnel has affected their ability to resolve DOE's comments. It is uncertain as to when the contractor will deliver to DOE an acceptable SAR. Following the approval of this SAR, an assessment by DOE of the review process for opportunities for improvement may be warranted.

A review of the AB List, Revision 126, indicates that it accurately reflects the current AB status of the nuclear facilities and the Y-12 Plant. The list is maintained by DOE.

It is noteworthy that the AB Manager has taken initiatives in the area of developing protocols for implementing safety basis expectations for compliance with the cancelled (but still in the Contract) DOE Order 5481.1B for non nuclear hazardous facilities. In addition, she is coordinating an effort to develop a standard based on practice at the various DOE sites that could provide a common basis for use throughout the Complex to address this issue. Another initiative the AB Manager is involved in is a potential pilot project to provide the rationalization for the relationships between hazard and accident analyses done for different purposes such as SARs, emergency management, fire hazard analyses, NEPA documentation, etc. This pilot project would involve the HEUMF, and combined with other DOE HQ work, could result in the production of a DOE Standard. The Standard could provide the basis for potential cost savings related to safety analyses. See also HAZ.1-7 for further discussion (HAZ.2-3).

#### Oversight of Implementation of Safety Basis Commitments

DOE relies, to a large extent, on Facility Representatives for presence in facilities to observe the quality of operations and adherence to the safety basis conditions of operations defined in SARs,

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BIOs, TSRs, and OSRs. Currently there are four Facility Representatives assigned to facilities. Previously there were eight and there are plans to increase this to ten. The current low level is due to personnel losses. The remaining Facility Representatives are stretched thin, and as a result certain useful activities no longer are conducted. Previously, weekly meetings were held where the Facility Representatives would describe issues and problems they had observed in their facilities. In an interview with a Facility Representative, there was a multitude of such stories, and the history of such meetings is that there were no shortages of facility events/condition to discuss. These meetings provided an opportunity for the identification of systemic problems that might need sitewide addressal. Until the Facility Representative cadre is increased, opportunities for recognition of operational issues of sitewide importance will be limited. (HAZ.2-4)

Procedure YSO-5.3 specifies the process to be used by YSO personnel in the development, review, approval, and maintenance of Authorization Agreements (AA). YSO requires AAs for Hazard Category 1, 2, and selected Category 3 facilities. Additionally, AAs are prepared for all high and moderate hazard facilities. A review of AAs for several facilities indicate that these have been prepared and approved in accordance with the procedural guidance. While there are slight formatting differences between the format contained in YSO-5.3 and the AAs reviewed, the contents of the AAs meet the requirements, are sufficiently detailed, and are adequate to satisfy the ISMS function for authorizing operations.

Conclusion and Summary: The criteria for this objective have been met.

#### Define the Scope of Work, Line Management Responsibility for Safety

DOE Line managers, via their approval of AB safety documents, are involved in the review of safety issues and concerns and have an active role in authorizing and approving work via the WAD and AA mechanisms. However, it appears that the process for arriving at an agreed upon scope and funding, and appropriate coordination with Contract Performance Indicators is not yet sufficiently evolved to ensure adequate participation and achieve the necessary integration. This has historically led to continued delay and if not corrected this will continue to lead to failure of meeting AB development commitments (HAZ.2-1).

#### Analyze the Hazards, Operations Authorization

DOE ISMS procedures and mechanisms are in place to ensure that hazards are analyzed, controls are developed, and that work is formally and appropriately analyzed and performed safely. The contract includes S/RIDs and Work Smart Standards (WSS) and there are procedures in place and functioning to ensure the proper flowdown of these into implementing procedures.

#### Perform Work Within the Controls, Balanced Priorities

DOE line managers are involved in the review of safety issues and concerns and have an active role in authorizing and approving work. Considering the magnitude and importance of the function, the YSO resource allocation for review and approval of the safety bases is not adequate to ensure success in the planned AB upgrade efforts (HAZ.2-2).

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Provide Feedback and Continuous Improvement, Clear Roles and Responsibilities

Personnel assignments and functions are consistent with DOE Field Office FRA and DOE FRAM requirements. Until the Facility Representative cadre is increased, opportunities for recognition of operational issues of sitewide importance will be limited (HAZ.2-4).

Noteworthy Practices

HAZ.2-3 The AB Manager has taken initiatives to develop an approach to safety basis documentation and authorization of operations for hazardous non nuclear facilities and also an initiative for a pilot project related to achieving efficiencies in hazard and accident analyses.

Opportunities for Improvement

HAZ.2-1 The process for arriving at an agreed upon scope and funding, and appropriate coordination with Contract Performance Indicators is not yet sufficiently evolved to ensure adequate participation and achieve the necessary integration.

HAZ.2-2 Considering the magnitude and importance of the function, the YSO resource allocation for review and approval of the safety bases is not adequate to ensure success in the planned AB upgrade efforts.

HAZ.2-4 Until the Facility Representative cadre is increased, opportunities for recognition of operational issues of sitewide importance will be limited.

<p>Inspected by: _____ Douglas Dearolph _____ Richard Englehart</p>	<p>Approved by: _____ Joseph King ISM Team Leader</p>
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<b>Functional Area: MG</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 28, 2000
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**OBJECTIVE**

**MG.1 (Senior Management Review)** Senior management is involved in all aspects of the ISM System. Safety performance measures are being met or actions are being taken at the senior level to correct the identified problems. Senior Line management continues to support the principles of ISM. An effective feedback and improvement process is in place that will identify site level issues and management of these issues is effective so that these items may be addressed and closed. Relevant records reflect an improving ISM system. (CCE-2, -4, -6, -9, and CE II-5, -6)

Criteria

1. A set of appropriate performance indicators are used by Senior Management to monitor ISM performance effectiveness and mechanisms are in place and utilized to evaluate and trend ISM performance indicators.
2. Performance indicators are presented by LMES to DOE periodically, and discussions are held as to actions being taken for improvement.
3. Senior management monitors actions taken to improve ISM performance effectiveness, with responsibility assigned to appropriate line manager.
4. ISM line management leadership is established and functioning at the company and the division level.
5. Senior Managers identify improvement opportunities. Evaluation and analysis mechanisms include processes for translating operational information into improvement processes for the site.
6. Relevant records reflect the status of effectiveness of ISMS at the site.
7. Feedback, improvement, and change control of the LMES description are in place and effective.

Approach

Record Review: Review the set of performance indicators that have been identified by LMES [in procedure Y15-635PD, *Energy Systems Integrated Safety Management System* (10/29/99), Appendix C, "Current Y-12 ISMS Performance Indicators"] to monitor ISM performance effectiveness.

Have performance objectives, performance measures, and commitments been revised as appropriate for the next year, taking into account the DOE budget guidance and current performance?

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Evaluate management's communication of performance measure results to the facility and organization level.

Evaluate facility and organization utilization of and response to performance indicator results and trends.

Review the status of SIP commitment for senior managers to spend more time on the floor.

Review the performance monitoring documentation provided to senior managers for their actions within the feedback and continuous improvement process.

Review the evidence file and determine effectiveness of the Issues Management Program implementation and execution at the senior management level by selecting completed milestones from the corrective action plans and ESAMS commitments associated with the Y-12 Systematic Improvement Program.

- Response to the DOE Type A Accident Investigation of the December 8, 1999, Sodium-Potassium Explosion at Building 9201-5, Y-12 Plant, Oak Ridge, Tennessee, Y/AD-642. (Ten items)
- Project Management System Corrective Action Plan. (Six items) (Letter with attachment, Response to Project Planning and Execution Issues, Robert I. Van Hook, LMES, to G. Leah Dever, DOE, March 3, 2000)
- Lockheed Martin Corporate Review of Type A Incidents. (Three items) (Lockheed Martin Corporation and Lockheed Martin Energy Systems, Safety Review Panel Study (initial Corporate and LMES response), April 11 and May 3, 2000.

Review relevant records – including self-assessment reports, independent and focused assessment reports, incident investigations, occurrence reports, DOE-ORO Defense Program Monthly Assessment Reports, welding program reports, PAAA enforcement action reports, and the LMES ISMS Independent Assessment (August 1999) – to determine the status of implementation, integration, and effectiveness of the Integrated Safety Management System.

Review the feedback, improvement, and change control process pertaining to the LMES Description document to ensure the process is in place and effective.

Interviews: Interview Senior Management personnel responsible for establishing trending and performance measures.

Interview selected Senior Management personnel who are identified by the record review above. Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity.

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Interview Senior Management to discuss participation their participation in the self-assessment and feedback program (lesson learned, critiques).

Interview Senior Management personnel responsible for maintaining and updating the ISMS Description Document.

Observations: Attend LMES management meetings that review performance metrics.

Attend LMES/DOE meetings that review performance metrics.

Observe Senior Management meetings that deal with review of areas of concern and status of progress.

Observe, if possible, a senior management self-assessment of work activities to determine the effectiveness of the assessments.

Observe any Senior Management meetings relative to the records and programs identified in the record review.

Records reviewed:

- Y-12 Plant Environmental Compliance Issues Summary Status
- Executive Steering Group (ESG) Charter, Rev. 3
- Executive Steering Group (ESG) Charter, Rev. 2
- Business Model Briefing Package
- Y73-043, Job Hazard Analysis
- YMA-645, Integrated Safety Management System Independent Assessment
- Y15-012, Hazard Identification Planning
- Y/AD-641-R3, LMES Organization Roles, Responsibilities, and Interfaces
- ESAMS Status Listing
- Y-12 ISMS Self-Assessment

Interviews:

PAAA Issue Coordinator, LMES

NaK Corrective Action Plan Evidence Coordinator, LMES

Training Manager, LMES

ISMS Description Document Coordinator, LMES

Observations: Executive Steering Group Meeting.

### **Discussion:**

The Senior Management has recently completed reorganization. The purposes of the reorganization were many. The following two goals are important to this discussion: 1) to keep no more than four levels of management between the President and the worker on the floor, and 2) to reduce the number of managers within LMES. As a result, 14 Division Directors report directly to the General Manager and the President. One of the new divisions established is the Technical Operations Division, which has the responsibility to add structure and discipline to the

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Engineering organization as well as to establish a design authority and system engineers. This is an important step in the improvement of the LMES safety program. In order to increase the communication between the divisions, three Leadership teams were organized and titled Production, Programs, and Services. The composite of these teams form the Executive Steering Group (ESG). The ESG has the responsibility for approval and promulgation of Y-12 ISM policies, procedures, and strategic plans as well as direction, oversight, and approval of the Site work scope. These responsibilities can be executed by the Leadership teams or by the entire group as required. For instance, the Production Team, which is comprised of the Directors of EUO, Manufacturing, Security, and Technical Operations Divisions, has the responsibility for implementation of ISMS at Y-12. While not formally stated, the assumption is that the production Leadership team may approve actions relative to implementation of ISMS (i.e., increase training to OSB members) without the formal concurrence of the ESG. However, if changes to the ISMS structure were required then the full ESG would be required to agree. Line management leadership is established and is functioning at the company and division level.

The revised ESG charter contained several direct responsibilities for ISMS. However there were several minor areas that were not well defined. The charter assigns responsibility to the ESG chairperson, but that person is not defined. There is no clear involvement of the President or General Manager in the group except they will be informed of substantive issues. Additionally, there is no clear statement concerning the evaluation of the status of the ISMS that is required by the DEAR Clause. The discussion that is contained in Y15-636 provides more specific details that could resolve the above issues. But since the ESG Charter was recently revised, it is not clear whether the ESG will continue to execute those same responsibilities. As the Senior Management is changed as a result of the new M&O contract and the responsibilities and authorities of the ISM System are revised, care must be taken to ensure the principles and detailed requirements of ISMS are clearly identified in the new organization (MG.1-1).

LMES has a set of performance indicators that are used to determine performance in several functional areas. These are posted on the internal web page. The areas include safety, environment, radiation control, transportation safety, nuclear safety and others (see MG.2). These performance indicators are presented to DOE on a periodic basis. These presentations and discussions are held at various levels including the Assistant Manager and Manager levels of ORO and YSO. The ESG members review these indicators and if unfavorable trends are determined then corrective actions will be developed and assigned for action. A recent action was taken as a result of an unfavorable trend observed in the environmental performance indicators. Corrective actions were taken that changed the trend from unfavorable to favorable. This is an example of a set of appropriate performance indicators being used by senior management to monitor ISM performance effectiveness and demonstrates that mechanisms are in place and utilized to evaluate and trend ISM indications. This is also an example of senior managers identifying improvement opportunities and translating them into processes that would improve the end result. In this case, the actions were to more rigorously enforce the requirements.

While this review was able to find specific issues within functional areas that were identified and corrected, we were unable to determine the process used to determine the status of implementation of ISM or a process for the development of a plan to assist in the improvement

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of the safety management system. The DEAR clause requires an evaluation of the status of the Safety System and that the contractor take steps to improve the compliance and safety performance of that system. The command media assigns the responsibility for the approval of the plans to the ESG. The ESG charter appoints the authority for implementation of ISM to the Production Leadership team. The Production Team receives the management self-assessment results concerning the status of implementation of ISMS. The Mission Success organization or FEB has the authority and responsibility to provide the independent operational review of ISMS implementation. The ES&H organization is the keeper of the performance indicators and the ISMS description document. The Quality Division have the analysts who evaluate other than operational aspects of the safety program. There is no organization or individual position that is required to evaluate the status of ISMS or propose an improvement plan to the ESG. This was an issue identified in the ISMS validation effort conducted in 1998.

Another specific issue identified in the 1998 review was that specific line management mechanisms were not present to ensure consistent implementation of ISMS across the Y-12 Site. This review indicates that the mechanisms along with the assignment of responsibility authority and accountability did not exist until after the NaK accident. Recently, the Production Team has been assigned and accepted the responsibility for implementation. That team must stay the course to ensure adequate and complete implementation. However, that team needs an evaluation mechanism to determine the overall status of the ISM System and to provide that status of implementation in sufficient detail to allow corrective actions to be taken to improve pockets of the program that do not meet those implementation expectations (MG.1-2).

With the reorganization and the assignment of new management personnel, a critical look was given to all the issues that were facing the new team. There was a concerted effort to focus on functional issues that would capture the numerous symptoms identified in the issue management system as well as the many corrective action plans. This worthwhile effort afforded the new management teams the information to focus on fundamental process areas to improve performance rather than trying to “Band-Aid” the numerous issues. This effort led to the Systemic Improvement Plan (SIP). The SIP was a set of management actions to improve three fundamental areas; (1) management responsibility and accountability, (2) project management/project implementation, and (3) management systems. This ISMS team fully agrees with the areas identified for improvement and that the effort to improve areas be the major focus of the senior managers. It is very important to realize that senior managers must stay focused on those issues, ensure their expectations are enforced, reevaluate the area against their expectations and then take the next step to achieve success in each of those areas. A deficiency of the SIP was that managers were not required to evaluate the results of the actions to determine if the expectations were achieved. While the plan calls for the independent evaluation by the FEB, the managers were not held accountable for their determining that their expectations had been met.

As a result of the NaK accident, Lockheed-Martin provided a team to review several accidents that had occurred at Oak Ridge and other Lockheed Martin DOE sites for common causal factors. This report highlighted two direct causal factors, hazard identification and control, and feedback and improvement deficiencies. Additionally, they indicated two underlying and systemic causes that led to the above issues. These two causes were 1) communication of

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management expectations for working safely, and 2) individual accountability and responsibility for safety. This report contains an excellent analysis and provides worthwhile recommendations for improvement and expectations for LMES safety systems (MG.1-3). The report addresses 27 specific issues that should be addressed by LMES as they proceed through the SIP and follow-on actions to improve safety success. This report would be useful in the training of managers and first line supervisors. LMES has reviewed these issues and have determined that these expectations are included within the presently constructed SIP.

A review of the performance indicators for safety shows there is some improvement in the safety performance, numbers of occurrence reports, numbers of OSR/TSR violations, lost work day case rate, and accident severity index to name a few. The PAAA records indicate a very good performance, but that record is soon to be tarnished by the actions from DOE/HQ regarding the NaK accident. Overall, the records indicate mixed trends and no clear overall trend in either direction. This review is finding sufficient deficiencies in implementation that would prevent a clear overall improving trend.

A formal process for proposing and approving changes to the ISM system description within LMES does not exist. This issue was identified by the LMES ISMS review of August 2000 and because it was also observed in sub-teams outside of the LMES review it is repeated here (See BBC.2). The System description document indicates that as changes in functional areas are made, the system description will be changed. There is no process to insure that proposed changes in a functional area will not result in a degradation of the safety system (MG.1-4).

Conclusion and Summary: The criteria for this objective have been met.

#### Line Management Responsibility for Safety

As a result of the reorganization, 14 Division Directors report directly to the General Manager and the President. In order to increase the communication between the divisions, three Leadership teams were organized and titled Production, Programs, and Services. The composite of these teams form the Executive Steering Group (ESG). The ESG has the responsibility for approval and promulgation of Y-12 ISM policies, procedures, and strategic plans as well as direction, oversight, and approval of the Site work scope. These responsibilities can be executed by the Leadership teams or by the entire group as required. For instance the Production Team, which is comprised of the Directors of EUO, Manufacturing, Security, and Technical Operations Divisions, has the responsibility for implementation of ISMS at Y-12. Line management leadership is established and is functioning at the company and division level.

#### Clear Roles and Responsibilities

The revised ESG charter contained several direct responsibilities for ISMS. However there were several minor areas that were not well defined. The charter assigns responsibility to the ESG chairperson, but that person is not defined. There is no clear involvement of the President or General Manager in the group except they will be informed of substantive issues. Additionally there is no clear statement concerning the evaluation of the status of the ISMS that is required by the DEAR Clause. The discussion that is contained in Y15-636 contains more specific details that would answer the above issues. It is not clear since the ESG Charter was recently revised that the ESG will continue to execute those same responsibilities. As the Senior Management is

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changed as a result of the new contract and the responsibilities and authorities of the ISM System are revised, care must be taken to ensure the principles and detailed requirements of ISMS are clearly identified in the new organization (MG.1-1).

An issue identified in the review in 1998, was that specific line management mechanisms were not present to ensure consistent implementation of ISMS across the Y-12 Site. Recently, the Production Team has been assigned and accepted the responsibility for implementation. That team must stay the course to insure adequate and complete implementation.

#### Provide Feed back and Improvement

LMES has a set of performance indicators that are used to determine performance in several functional areas that include safety, environment, radiation control, transportation safety, nuclear safety, and others. These performance indicators are presented to DOE on a periodic basis at various levels including the Assistant Manager and Manager levels of ORO and YSO. The ESG members review these indicators for unfavorable trends and determine corrective actions, which are assigned for action. A recent action was taken in the environmental area, which changed the trend from unfavorable to favorable. This is an example of a set of appropriate performance indicators being used by senior management to monitor ISM performance effectiveness and demonstrates that mechanisms are in place and utilized to evaluate and trend ISM indications.

This ISMS team was unable to determine the process that might be used to determine the status of implementation of ISM and the resulting plan to assist in the improvement of the safety management system. The DEAR clause requires an evaluation of the status of the Safety System and that the contractor take steps to improve the compliance and safety performance of that system. The command media assigns the responsibility for the approval of the plans to be the ESG. The ESG charter provides the authority to implementation of ISM to the Production Leadership team. LMES needs an evaluation mechanism to determine the overall status of the ISM System and to provide status in sufficient detail to allow corrective actions to be taken to improve pockets of the program that did not meet those implementation expectations (MG.1-2). This is a portion of an issue that was identified in the ISMS verification effort conducted in 1998.

A corporate Lockheed Martin team reviewed accidents that occurred at Oak Ridge and other Lockheed Martin DOE sites for common causal factors. This report contains an excellent analysis and provides worthwhile recommendations for improvement and expectations for LMES safety systems (MG.1-3). This report highlighted two direct causal factors, hazard identification and control, and feedback and improvement deficiencies and two underlying and systemic causes: 1) communication of management expectations for working safely and 2) individual accountability and responsibility for safety. LMES has reviewed these issues and have determined that these expectations are included within the presently constructed SIP.

A formal process for proposing and approving changes to the system description within LMES does not exist. The System description document indicates that as changes in functional areas are made, the system description will be changed. There is no process to ensure that proposed changes in a functional area will not result in a degradation of the safety system (MG.1-4).  
(LMES Issue)

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Issues

Noteworthy Practices:

MG.1-3 A corporate Lockheed Martin team reviewed accidents that occurred at Oak Ridge and other Lockheed Martin DOE sites for common causal factors. This report contains an excellent analysis and provides worthwhile recommendations for improvement and expectations for LMES safety systems.

Opportunities for Improvement

MG.1-1 As the Senior Management is changed as a result of the new contract and the responsibilities and authorities of the ISM System are revised, care must be taken to ensure the principles and detailed requirements of ISMS are clearly identified in the new organization.

MG.1-2 LMES does not have an evaluation mechanism to determine the overall status of the ISM System and to provide status in sufficient detail to allow the Production Leadership team to develop corrective actions necessary to improve pockets of the program that did not meet those implementation expectations.

MG.1-4 There is not a process to insure that proposed changes in a functional area will not result in a degradation of the safety system.

Inspected by: _____ Wayne Rickman	Approved by: _____ Joseph King Team Leader
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<b>Functional Area: MG</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 29, 2000
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**OBJECTIVE: MG.2** System effectiveness, measured as described in the program description, is satisfactory. Safety performance objectives, performance measures and commitments have been met or exceeded. (CCE-2)

Criteria

NOTE

*Within this CRAD, Safety performance objectives, performance measures, and commitments will be evaluated at the facility level as well as the site level.*

1. A set of appropriate performance indicators has been selected to monitor ISM performance effectiveness.
2. Mechanisms are in place and utilized to evaluate and trend ISM performance indicators.
3. Performance indicators are reviewed periodically and revised accordingly for the next year by appropriate levels of line management in response to budget guidance and current performance.
4. Performance indicators are presented by LMES to DOE periodically, and discussions are held as to actions being taken for improvement.
5. Actions taken to improve ISM performance effectiveness are monitored, with responsibility assigned to appropriate line manager.

Approach

**Record Review:** Review the set of performance indicators that have been identified by LMES [in procedure Y15-635PD, "Energy Systems Integrated Safety Management System" (10/29/99), Appendix C, "Current Y-12 ISMS Performance Indicators"] to monitor ISM performance effectiveness. Emphasis should be on work accomplishment and safety performance. If appropriate, trends should be identified, corrective actions assigned, and effectiveness of corrective actions in improving performance trends evaluated.

Review the process that defines how performance indicators are selected, tracked, trended, monitored, and otherwise managed. Observe implementation of the process expectations throughout this CRAD.

Review the following data, noting trends identified, corrective actions assigned, and effectiveness of corrective actions in improving performance trends:

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- Near Misses and Safety Concerns in Comparison to Actual Injuries. This data will show how successful ISM is in learning from near misses, thus avoiding actual accidents. This indicator is calculated by dividing the number of near misses and safety concerns by the number of events in which an actual injury occurred for the same time period. A near miss is defined as an operational event where barriers to an accident have been compromised such that no barriers or only one barrier remains (e.g., lack of fall protection, electric shock without injury, unauthorized confined space entry). A safety concern includes the other performance measures identified during the review.
- Status of Incentive/Award Fee Metrics That Reflect ISM Performance.
- Review Occurrence Reports/Operational Safety Requirement (OSR) Violations for FY 2000 and Eagle Safety Program.

Ensure performance objectives, performance measures, and commitments have been revised as appropriate for the next year, taking into account the DOE budget guidance and current performance?

Evaluate management's communication of performance measure results to the facility and organization level.

Evaluate facility and organization utilization of and response to performance indicators results and trends.

Interviews: Interview personnel responsible for establishing trending and performance measures.

Interview personnel assigned responsibility to generate corrective action plans and execute corrective actions to improve ISM performance trends.

Interview DOE personnel responsible for approving, monitoring accomplishment, and acting on results of meeting objectives, measures, and commitments.

Observations: Attend LMES management meetings that review performance metrics.

Attend LMES/DOE meetings that review performance metrics.

Records reviewed:

- Y14-37-052PD, "EUO Performance Monitoring," 03/08/00
- Y/TS-1776, "Lockheed Martin Energy Systems, Inc. Environmental, Safety, and Health Status of Performance Measures," November 30, 1999
- Y15-636, "Integrated Safety Management Program," 04/25/00
- Y/AD-641-R3, "LMES Organizational Roles, Responsibilities, and Interfaces," 06/15/00
- Performance Evaluation Plan for Lockheed Martin Energy Systems, Inc., Fiscal Year 2000
- Y30-600, "Workplan Preparation and Administration," 04/11/2000
- YSO-1.2, "Organization and Responsibilities," Rev. 4, 07/01/99
- Agenda for DOE Program Review, August 17, 2000
- Briefing Package on Y-12 Environmental Compliance Performance, April 27, 2000

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- Y14-192, "Occurrence Notification and Reporting," 05/19/00
- Occurrence Reporting and Processing System report on near misses 1992-2000
- Energy Systems Occurrence Reporting Electronic News Bulletin 00-1, January 1 – March 31, 2000
- LMES Environmental, Safety, and Health Objectives and Performance Measures, September 17, 2000
- EUO Performance Indicator reports for May and July 2000
- July 2000 Integrated Safety Management Self Assessment for the LMES Environmental Compliance Organization
- LMES Performance Summary Report for FY 1999 and first six months of FY 2000
- Letter dated March 20, 2000, Robert W. Poe to Attached List, "Presentation of Performance Metrics at the Monthly ES&H Manager's Meeting"
- Analytical Chemistry Performance Report, June 2000
- Y-12 Plant Environmental Compliance Issues Summary Status, 06/26/00 – 07/14/00
- Weekly Safety Bulletins for the Materials and Mechanical Operations Organization, May 1, 2000, August 14, 2000, and August 21, 2000
- Occupational Injury/Illness Report, July 10, 2000
- Y73-001PD, "Energy Systems Industrial Safety Program," 04/04/00

#### **Interviews:**

- Support Manager, Special Materials Operations
- Safety Manager, ES&H Organization
- ISM Program Manager
- Program Manager, Y-12 Site Office
- Manager, Analytical Chemistry Organization
- Division Director, Development
- Support Manager, Special Materials Operations
- Manager, Special Material Operations
- Manager, Materials and Mechanical Operations Organization
- Leader, Statistical Applications
- Manager, Environmental Compliance Organization
- Staff member, Issues Management
- Acting Director, Quality Organization
- Operations Manager, Enriched Uranium Operations
- Chemical Recovery Manager, Enriched Uranium Operations
- Assessments Manager, Enriched Uranium Operations
- Manager, ES&H Organization
- Manager, RadCon Organization

#### **Observations:**

- Oak Ridge Reservation Monthly ESH&Q Managers Forum

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#### **Discussion:**

The ISMS program description (Y15-635PD), performance indicator reports, and numerous procedures were reviewed to determine if an appropriate set of performance indicators have been selected. Y15-635PD clearly identifies two sets of performance indicators. One set consists of performance metrics which are placed in the contract and can result in award fee. The other set is used to monitor ES&H performance. The ES&H indicators are at the site-wide level and are posted on the Y-12 internal web site. Posting the ES&H indicators on the web occurred within the past few months and provides readily available access to the indicator data.

The Performance Evaluation Plans (PEPs) for Fiscal Years (FY) 1999 and 2000 were reviewed for the inclusion of ISM related metrics. Clearly, ISM related metrics are contained in the PEPs. For example, the FY 1999 PEP contains objective AF-2.1 which states, "Conduct operations in accordance with provisions of the DOE/LMES Prime Contract Clause 1.75, 'Integration of Environment, Safety, and Health into Work Planning and Execution' (Integration Safety Management)." Likewise, the FY 2000 PEP contains objective Y-12.4.2, *Conduct of Operations*, which states, "Complete an independent assessment of the Y-12 Plant conduct of operations practices ...include an evaluation of the effectiveness of the Conduct of Operations Management Assessments conducted by the operating organizations." This objective can provide one measure on the effectiveness of the ISM feedback and improvement core function. The inclusion of these indicators in the PEPs provides one measure of ISM effectiveness and meets the intent of the review criteria.

The site level ES&H performance indicators found on the web site cover the areas of environment, safety and health, transportation safety, radiological control, emergency management, fire protection, and nuclear safety. Based on interviews with numerous line and support managers, they were aware of these ES&H indicators and used them to note trends and improve performance.

Nonetheless, there is no apparent set of site-wide performance indicators which measure the effectiveness of the ISM "system." For example, indicators that evaluate the use and effectiveness of JHAs, JHIs, OSBs, management assessments, and other ISM system tools described in Y15-635PD could not be found at the site level (MG.2-2) (MG.1-2). However, several lower tier Y-12 organizations have developed their own ISM related metrics which are noteworthy and could be useful to other Y-12 organizations interested in developing organization specific metrics. For example, the Analytical Chemistry Organization (ACO) has developed numerous performance measures such as management field time, customer satisfaction survey, and reportable occurrences. Likewise, Enriched Uranium Operations (EUO) has metrics for first aid events, open issues, and management assessment completions. In fact, EUO has developed procedure Y14-37-052PD, *EUO Performance Monitoring*, solely for the purpose of using performance indicators to evaluate performance. This is a noteworthy practice (MG.2-1).

Although the ES&H performance indicators are found on the web, no command media was found that define the responsibilities for updating, trending, and managing the data input and the web site. Based on interviews, it appears the ISM Program Manager (who is part of the LMES ES&H organization) has overall responsibility for managing the web site. However, this role and responsibility has not been documented.

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Performance indicators are reviewed periodically and revised in accordance to budget guidance and site performance. This was clearly demonstrated during the development of the PEP for FY 2001. ODP Program personnel formally requested input (via e-mail) from the ODP Technical Division on the performance metrics being developed for the FY 2001 PEP. This provides a clear opportunity to revise the indicators as appropriate. Once defined by ODP personnel, the draft performance metrics are shared with LMES for comment. Based on interviews with the ODP and LMES leads for the PEP, the process used to review and update performance indicators is working.

Based on an interview with the LMES ES&H Organization Manager, line management was asked if a change to the site level ES&H performance indicators was needed. No suggested changes were offered. It would be prudent to include a requirement in the appropriate command media to formally request proposed changes to the ES&H indicators from the affected line managers on a periodic basis (see MG.2-3).

LMES does present performance indicator data to DOE on a periodic basis. Performance indicator data is routinely presented at the monthly DOE program review held with the AMDP. Likewise, indicator data is presented at the monthly Oak Ridge Reservation ESH&Q Manager's Forum. The ESH&Q Manager's Forum meeting for the month of August was observed. LMES presented metrics on several safety areas and discussion occurred on actions being taken to correct negative trends. Overall, the meeting was productive and appeared to be a good tool for sharing indicator data with DOE.

Routine meetings are also held with the ODP to gain status information on the performance metrics found in the PEP. Likewise, the FY 1999 and 2000 PEPs state that ODP personnel will meet periodically with the contractor to discuss performance and/or clarify any performance misunderstandings. Based on the PEP documentation and interviews with key ODP and LMES personnel, LMES routinely presents performance indicator data to ODP and the review criteria is met.

There has been some success regarding monitoring the effectiveness of actions taken to improve ISM performance. One positive example was actions taken to improve compliance with environmental requirements. During a routine audit of various line management organizations by the Environmental Compliance Organization, a trend was noted showing an increase in the number and type of environmental noncompliances – especially in the area of hazardous waste management. This negative trend was communicated to LMES upper management and actions were taken to correct the problem. Personnel from the Environmental Compliance Organization met with the problem organizations and provided technical assistance and other self-assessment tools to improve performance. Months after this, the Environmental Protection Agency performed a surprise environmental compliance inspection at Y-12 and no major deficiencies were noted. This is an example of using performance metrics to note trends, take action, and improve performance (MG.2-4).

**Conclusion and Summary:** With the exception of having well defined mechanisms in place to evaluate and trend ISM performance indicators, the criteria for this objective have been met.

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Feedback and Improvement

LMES does have site wide ES&H performance indicators which are used as a measure of ISM effectiveness. Management is aware of these indicators and uses them to monitor and improve performance. However, there are no clear command media which defines the process and responsibilities for updating, trending, and managing the data (MG.2-3).

There is limited metrics on the ISM tools described in Y15-635PD. Pockets of innovative performance metrics exist across the site and have been commended. However, the incorporation of these metrics at the site level apparently has not been evaluated.

Issues

Noteworthy Practices

- MG2-1      The development and use of organization-specific performance indicators by ACO and EUO is commendable.
- MG2-4      The recent use of performance indicators and trend information to improve performance in the environmental compliance area is commendable.

Opportunities for Improvement

- MG2-2      There are no site-wide performance indicators on the effectiveness of the ISM system tools described in Y15-635PD.
- MG2-3      No command media was found which define the process and responsibilities for updating, trending, and managing the data and metrics on the ISM performance indicators web site.

<div>Inspected by: _____ James Donnelly</div>	<div>Approved by: _____ Joseph King ISM Team Leader</div>
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<b>Functional Area: MG</b>	<b>Criteria Met</b> ____ <b>Yes</b> <u><b>X</b></u> <b>No</b> <b>Date:</b> August 29, 2000
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**OBJECTIVE**

**MG.3** An effective feedback and improvement process, using progressively more demanding criteria, is functioning at each level of the organization from the worker and individual activities through the facilities and the site. The expectations of DOE P450.5 are in place. Issues management is effective so that issues are identified, evaluated, and closed. Issues identified in ISMS verifications and previous ISMS annual update reviews are effectively addressed. (CCE-6 and CE II-5)

**Criteria**

**NOTE**

*The data to evaluate this CRAD at the activity and facility level will be gained through observation of the LMES assessment. Data associated with individual activities and SME Disciplines will be included in the SME and CCE3 CRAD reviews.*

1. Managers at all levels collect feedback information through self-assessment, monitoring against performance objectives, occurrence reporting, critiques/management reviews, and routine observation.
2. Feedback and improvement information opportunities exist at the site and facility levels as well as the individual maintenance or activity levels. The information that is developed at the individual maintenance or activity level is utilized to provide feedback and improvement during future, similar, or related activities.
3. Managers identify improvement opportunities. Evaluation and analysis mechanisms include processes for translating operational information into improvement processes and appropriate lessons learned.
4. Managers consider and resolve recommendations for improvement, including worker suggestions.
5. Processes have been established to roll-up and evaluate feedback and improvement data from all sources to develop information useful to all levels of management to support process improvements at all level of Y-12 Site.
6. Issues management is effective; issues are identified, evaluated, and closed. A process is effective to determine confirmation of closure action.
7. Issues identified in ISMS verifications, previous ISMS annual update reviews, and criterion from the SIP are effectively addressed.

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#### Approach

Record Review: Review the performance monitoring documentation for the feedback and continuous improvement process. [This review should include such documents as occurrence reports, shift orders, deficiency reports, post-job reviews, safety observer reports, employee concerns programs such as “I Care We Care” (procedure Y73-936INS) and reports of self-assessments (procedure Y60-902, “Management Assessment”).

Review procedures for work to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or operational activity level. Review actual data from these processes to evaluate the effectiveness of the implementation of these mechanisms. (*this aspect of the review will be primarily accomplished incident to SME and CCE-3*)

Review reports of management reviews and management critiques to determine that adequate feedback and improvement mechanisms are in place for abnormal operational events.

Review processes and resulting information resulting from roll-up and analysis of feedback and improvement data as well as how the information is being used to cause improvements in the ISMS at all levels of management at the Y-12 Site.

Review the evidence file and determine effectiveness of the “Issues Management Program Description” (Y60-310PD) implementation and execution by selecting completed milestones from the corrective action plans and ESAMS commitments associated with the Y-12 Systematic Improvement Program.

- *Response to the DOE Type A Accident Investigation of the December 8, 1999, Sodium-Potassium Explosion at Building 9201-5, Y-12 Plant, Oak Ridge, Tennessee, Y/AD-642.* (Ten items)
- Project Management System Corrective Action Plan. (Six items) (Letter with attachment, *Response to Project Planning and Execution Issues*, Robert I. Van Hook, LMES, to G. Leah Dever, DOE, March 3, 2000)
- Lockheed Martin Corporate Review of Type A Incidents. (Three items) (Lockheed Martin Corporation and Lockheed Martin Energy Systems, *Safety Review Panel Study* (initial Corporate and LMES response), April 11 and May 3, 2000.

Review action plans and resulting actions derived from the DOE ISMS Combined verification conducted in 1998.

Review the effectiveness of the Lessons Learned Program (procedure Y60-331, “Lessons Learned Program”) implementation and execution.

Review the organization process and actions that address the management response to the LMES ISMS Independent Assessment (August 1999) and the Facilities Evaluation Board (FEB) facility reviews and unannounced observations.

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Review the closure of deficiencies identified by the management self-assessment program (procedure Y60-902, "Management Assessment") to determine if it is effective and if personnel are held accountable for their performance.

Review three completed management self-assessments (procedure Y60-902, "Management Assessment") to ensure they focused the reviews on the adequate implementation of the core functions and principles of Integrated Safety Management in a manner consistent with the approved ISMS description and utilized the POCs.

Review three completed independent assessments (procedure Y60-901PD, "Energy Systems Assessment Program Description") to ensure they focused the reviews on the adequate implementation of the core functions and principles of Integrated Safety Management in a manner consistent with the approved ISMS description and utilized the POCs.

Interviews: Interview workers to evaluate their participation in feedback and improvement program.

Interview line managers to discuss participation in self-assessment and feedback program (lesson learned, critiques).

Observations: If scheduled, attend post-job reviews, critiques, or other activities where worker feedback is obtained.

Observe management meetings that deal with review of areas of concern and status of progress.

Observe, if possible, a management self-assessment of work activities to determine the effectiveness of the assessments.

#### Records reviewed:

- Y15-635PD Integrated Safety Management System (ISMS) Description
- Y15-636 Integrated Safety Management Program
- Y/AD-641-R3 LMES Organizational Roles, Responsibilities, and Interfaces
- Executive Steering Group (ESG) Charter, Rev 3, May 4, 2000
- Lockheed Martin Energy Systems (LMES) Organization Charts
- Y/MA-645 LMES ISMS Independent Assessment Report August 2000
- Facility Evaluation Board (FEB) Evaluation of Development, March 27-31, 2000
- Y/DA 9598 ISMS Self Assessment Report for the Development Division, July 2000
- Memorandum from H.T. Conner to E.J. Bergin, ISMS Internal Review-Amended, Dated August 18, 2000
- Memorandum from Paul Wasilko to Harold Conner, Response to May 3, 2000 Request: Integrated Safety Management at Y-12
- LMES ISMS Performance Measures
- Y-12 Systematic Improvement Plan (SIP)-Corrective Action Plan (effective April 15, 2000)
- Y15-006 Mission Success Evaluations, dated 6/13/00, Effective Date July 31, 2000

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- Letter E.J. Bergin (LMES) to William J. Bromley (DOE-YSO), Subject: ISMS at Y-12 with enclosure of Y-12 SIP.
- Presentation Material of development process for Y-12 SIP
- Y/AD-642, Response to the DOE Type A Accident Investigation of December 8, 1999, Sodium-Potassium Explosion at Building 9201-5, Y-12 Plant, Oak Ridge, Tennessee, March 15, 2000
- Memorandum from C.K. Stalnaker to E.J. Bergin, Roles and Responsibilities of the Mission Success Organization, Dated May 8, 2000
- Memorandum from E. J. Bergin to C. K. Stalnaker, The Mission Success Organization, dated April 24, 2000
- Memorandum from C.K. Stalnaker to E.J. Bergin, Quarterly Report of Mission Success Organization Activities, dated July 24, 2000
- Report of Review of Safety Issues at Lockheed Martin-Operated DOE Facilities, March 20, 2000 Y60-904 Surveillance (Rev. 4/1/99)
- Y73-936INS I Care – We Care (Safety and Health Concerns), Rev. 1/21/99
- I Care – We Care Web Site (Contacts and Issues by Organization)
- Detailed I Care – We Care Records for selected issues
- I Care – We Care Database Statistics Reports
- Management Self-Assessment, Vehicle Safety
- MMO ISM Assessment results tables
- Y-12 Plant Compliance Operations Safety Board (COSB) Background Information
- COSB Charter, 8/1/00
- COSB Monthly Meeting minutes October 1999 to July 2000.
- Various status reports and issues printout from ESAMS and DOE EH CATS Issues Management and tracking data bases
- Draft Report of Annual Assessment of the Management Assessment Program at Y-12 for FY 1999
- Y60-902, Management Assessment, dated 03/15/2000, Effective 06/30/2000
- Maintenance/Utilities and Infrastructure Management ESAMS Commitment Status printout dated 08/21/2000
- Selected Maintenance Organization Performance metrics with trends
- Facility Management Organization Self Assessment Schedule for FY 2000
- Maintenance Assessment Program Schedule for FY 2001-DRAFT
- Record of conduct of required ES&H Program Annual Management Assessments
- Safety Organization FY 2001 Assessment Schedule
- FY-2001 ES&H Program Element check lists for Management Assessment Programs
- FY-2000 ES&H Program Element check lists for Management Assessment Programs
- Special Materials Organization (SMO) Assessment Schedule Status Report
- SMO ESAMS Monthly Report, July 1, 2000
- Development Organization FY 00 Assessment Schedule
- Y/TIS-0004 Technical Operations Division Assessment Program for FY 2001, including Management Assessment Program for Development Organization
- Materials and Mechanical Operations Organization (MMO) significant/critical deficiencies list

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- MMO Safety Bulletins (16)
- Summary of MMO Assessment Issues
- MMO Review and Critiques by Area, summary report
- MMO Integrated Management Assessment Plan-06/13/2000
- MMO Management Reviews (6)
- Y-14-37-052PD, Enriched Uranium Operations (EUO) Performance Monitoring, 03/08/2000
- Memorandum from R. D. Sabin to H.T. Conner, Jr. , EUO performance Indicators for May 2000
- Nuclear Criticality Safety Organization (NCSO) Briefing, ISMS Implementation
- NCSO Management Assessment Program Metrics
- ISMS Self Assessment reports
- FEB Performance Objectives and Criteria

Interviews:

- Director, Manufacturing
- Director, EUO Operations and Restart
- Director ES&H
- Director, Quality
- Manager, EUO Operations
- Manager, EUO Assessments
- EUO Infrastructure Operations Manager
- EUO Chemical Recovery Operations Manager
- EUO Restart Manager
- EUO Criticality Safety Officer
- Manager, MMO
- MMO Assessments Coordinator
- MMO Technical Support lead
- Manager SMO
- SMO Operations Manager
- SMO Technical Support Manager
- Manager, Criticality Safety
- Assembly Criticality Safety Officer
- Manager, Development
- Manager Safety
- Manager, Maintenance Division (2)
- Maintenance Organization Assessment Coordinator
- Industrial Safety Assessment Coordinator
- Assembly Facility Manager
- Warehouse Facility Manager
- Manager Assembly
- Manager Mission Success (FEB)
- Issues Management Coordinator
- Lessons Learned Coordinator
- LMES ISMS Independent Assessment Team Leader

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### Observations:

- Assembly Plan of the Day meeting
- Assembly Crew pre-shift briefing and safety meeting
- LMES ISMS Independent Assessment daily brief
- LMES ISMS Independent Assessment interviews and observations for function of feedback and improvement.

### Discussion

As discussed in the LMES ISMS Independent Assessment, Management Assessment is an area in which significant improvements are required in order to meet the expectations of ISMS. Our review found that at the site level, the Management Assessment Program was not effective and as a result the data from the individual management assessments was not being analyzed and made available to improve performance across individual Y-12 organizations. In addition, management did not ensure that the data was analyzed and provided in a manner to facilitate improvements in the ISM System at Y-12. As will be discussed in more detail below, the initiative, Mission Success, described in the SIP vision statement as an organization to provide an integrated evaluation of plant performance and an integrated analysis of all available data to determine the status of ISMS is not effective.

Each organization had a management assessment program that loosely met the expectations of Y60-902, *Management Assessment Program*. Significant differences in process and effectiveness were noted among the various systems. Some excellent efforts are identified as noteworthy practices. For example, the management assessment monthly reports prepared by the EUO Assessment coordinator provided timely and useful information to EUO management. Data included trends and metrics to assess performance in a number of areas of interest. In addition, the report contained alerts to unfavorable trends to provide an opportunity for management action before an adverse trend became a reportable problem. Within EUO, assessment data is being analyzed and provided to management in a timely and useful form to support proactive management action (MG3-1).

The Management Assessment program described in the Maintenance organization was notably not effective. No effort was acknowledged to enforce the requirement to conduct post job reviews of completed work packages or gather the data from those reviews. A program of management presence in the workspaces, in compliance with a directive from the General Manager, was discussed. No effort was made to capture and document the results of the management reviews of performance of work in the spaces. As a result, no lasting benefit will be achieved. No tracking or trending is possible. No lessons will be learned that can be of value to other managers or during performance of additional similar work. Review of the schedule of management assessments indicated a limited number were scheduled and conducted. In view of the continuing issues with maintenance management, it would be prudent to schedule and conduct additional assessments. In fact, a review of the Maintenance organization's ESAMS printout indicated an action overdue since 09/99 to "perform a maintenance self-assessment to ensure that the work instructions are being followed correctly and documentation continues to be performed properly." During the Site ISMS Self-Assessment in preparation for the LMES ISMS Independent Assessment, it was identified that the Maintenance organization's management

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assessment program was deficient. A Management Assessment Program Improvement Action Plan was developed. Review of this plan shows it to be cursory, shallow, and not adequate to generate the necessary improvement in the Maintenance organization's management assessment program (MG3-2).

In response to the General Manager's direction to increase management presence in the workspace, Materials and Mechanical Operations Organization (MMO) has developed a management observation checklist to increase the value of the managers' time in the workplace. The checklist contains the functions of ISM and a number of questions and expectations that reflect mature implementation of ISMS. While the use of the checklist is expected, the level of detail is informal and at the discretion of the individual supervisor. As a follow-up, when a number of the observation checklists are completed, management reviews the results to discern useful information that is then promulgated to each first line supervisor via the weekly safety bulletin. The weekly safety bulletin is used within MMO at each pre-shift brief. Capturing the data from the supervisory self-assessments in the workplace, analyzing that data, and providing the useful information through the weekly safety bulletin is considered to be a noteworthy practice (MG3-3).

A general weakness is noted concerning developing feedback and improvement information into useful data for use across the site. As noted above, MMO and EUO are exceptions in this regard in that feedback information is developed and promulgated for use within their own organizations. Even in these positive situations, no efforts were noted to move the information outside of the individual organizations in which it was developed.

Y60-902, *Management Assessment Program*, requires that the site Assessment Manager develop an annual Management Assessment Report. The contents of the report, if diligently prepared, would provide useful information. The draft report was reviewed and contained a critique of the Management Assessment Program that essentially paralleled the findings of this assessment and the LMES ISMS Independent Assessment. However, the annual report for 1999 has not been issued. Y60-902 also requires each organization to prepare an annual report with similar summary and roll-up information required of the site level report. Few organizations were routinely preparing those reports. It was noted that some managers prepared summary reports of the results of the recently completed ISMS Self-assessment within their organizations.

The directives concerning work control require post job review and documentation to identify feedback and improvement opportunities associated with the recently completed work. The implementation of this requirement has been ineffective. No data has been developed and no information has been created that permit improvements either within the maintenance organization or within the organization in which the maintenance is being accomplished. This situation is a contributing element to the conclusion that the maintenance Management Assessment Program is not adequate (MG3-2).

Managers did not always identify improvement opportunities from feedback and improvement efforts. Little effort was noted to gather and analyze routine operational data or data associated with management presence in the work place. Only MMO had a structured program. It was noted that several organizations evaluated the management reviews and management critiques to

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assess the aggregate lessons learned and corrective actions that are appropriate. The criticality safety organization was notably diligent in gathering data from individual criticality safety infractions. However, the less significant administrative errors were noted in individual assessment records, but not collected, tracked, or analyzed in batches to attempt to identify adverse trends or adverse conditions.

The ineffective condition of the issues management program discussed below (MG3-7) has, as a contributing factor, the situation in which managers do not effectively evaluate operational information to identify appropriate corrective actions or require follow-up evaluations to determine whether the actions are effective. Weaknesses or opportunities for improvement are not routinely identified and acted upon. With the exception of EUO and two examples with site level ES&H data, there is very limited evidence that managers are proactive in reversing deteriorating conditions before they result in reportable conditions with mandatory corrective actions.

The LMES team reviewed the Lessons Learned Program (Procedure Y60-331). A number of weaknesses were identified. Both the LMES team and the ISM team interviewed the Lessons Learned Program Manager and similar conclusions were reached. The Energy System Lessons Learned Program is not yet fully utilized by organizations across the site.

All levels of management are sensitive and responsive to worker suggestions. The I care/We Care program in which worker suggestions and concerns are resolved was noted to be particularly effective. Routine communication between workers and supervision was reported in various assessments and reviews to be strong and a positive condition. The program is simple and timely in providing feedback to the originator of a concern. The quick response to individuals is one of its notable strengths. From the period of January 1999 to August 22, 2000, 498 issues have been submitted. Of these, 416 have been closed and 82 remain open. The average length of time required to reach closure on the 416 closed issues is 66 days. The ISM team concurs with the LMES team in stating that this program is a success.

Feedback and improvement activities across Y-12 are severely “stovepiped”. Management Assessment programs and self-assessment programs are unique within each organization. As noted above, some of the programs were effective in causing improvement of the ISM System within the organization, but provided no value outside of the organization in support of any site-wide improvements.

In the recent instance when an ISMS self-assessment was conducted by each organization within Y-12, the results were not effectively evaluated to permit site-wide conclusions or to support site-wide improvement of the ISMS. The LMES ISMS Independent Assessment provided an accurate assessment of the status of ISMS at Y-12 at the organization, facility, and activity level. The evaluation did not assess the adequacy or integration of the ISMS at the site level. Similarly, the independent assessment did not evaluate the effectiveness of processes to determine site-wide ISMS opportunities for improvement or necessary changes. The review plan for the LMES ISMS Independent Assessment noted that the site-wide status would be evaluated by this DOE verification.

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Y15-635PD, *Energy Systems Integrated Safety Management Description* identifies several mechanisms at the site level for feedback and improvement of the ISM System. These include Mission Success/FEB (Y15-006), Management Assessment (Y60-902), Issues Management (Y60-312), and performance measurement through performance indicators. It is the conclusion of the review that these mechanisms are not effective in providing an accurate status of the site-wide ISMS. Furthermore, the mechanisms do not provide useful information with which senior management can affect change or improvements in the Y-12 ISM System (MG.3-4). (see also MG1-2).

The SIP contains a commitment to “Establish Mission Success to formalize senior management independent assessment function and ISM performance measuring.” The Mission Success implementation, based on several memoranda is reflected in Y15-006, which is an update of the directive that established the FEB. Several memoranda between the General Manager and the director of the FEB/Mission Success provide additional information as to the implementation of Mission Success. Several additional memoranda with enclosures document Mission Success reviews and provide the quarterly Mission Success organization’s activities. Finally, a review of the criteria used for Mission Success/FEB evaluations provides understanding of the focus of the Mission Success reviews. In all cases, it is clear that the actual practices and direction of Mission Success/FEB are not directed towards development of a site level understanding of the status of ISMS. In fact, the information provided by the Mission Success Organization to facility and site management is without conclusion and is strictly facts and issues. That is not the type of information that is useful to the Production Team in fulfilling their responsibility for the ISM System at Y-12. In summary, Mission Success, as currently implemented and operating does not achieve the vision stated in the SIP “..to formalize senior management independent assessment function and ISM performance measuring.” (MG3-5)

In the role of Mission Success, the FEB does not fulfill the expectations stated for the initiative. However, as an independent organization to assess performance of activities in compliance with conduct of operations and conduct of maintenance requirements, their performance has been effective and caused performance improvements. The FEB fills an important role within the feedback and improvement function that should be enhanced and supported. The FEB has not, however, effectively adapted their evaluation focus to the functions and principles of the Y-12 ISM System. The Performance Objectives and Criteria are focused on conduct of operations and individual infrastructure support programs. The reviews focus on performing work within controls with less emphasis on the other ISM functions and principles. One result of this narrow focus is that the information available from FEB activities provides limited insight into the status of the Y-12 ISM System. This situation will be discussed further in MG4.

The Management Assessment Program is intended to provide feedback and improvement at each level of the organization. Through the analysis required to prepare the program annual report, the status of the ISM System at the site level should be apparent. The annual report should therefore provide information to permit the Production Team to fulfill their responsibility for the ISM System. However, as discussed above, the Management Assessment (MA) Program Annual report for 1999 has not been issued. In addition, since the organizational level management assessment programs are not consistent, and since many have not prepared annual reports that would support the program annual report, the program is not effective to describe the

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status of the site ISM System. In summary, as noted in the LMES ISMS Independent Assessment: “The lack of an effective MA Program continued to be a significant concern that requires prompt senior management attention. Analysis of existing MA program data and interviews with managers confirmed that this important tool for ISM feedback and improvement is consistently being inappropriately addressed as an administrative requirement.” The MA program does not fulfill the function for feedback and improvement ascribed to it in the ISM System description (MG3-6).

A contributing cause for the poorly integrated evaluation of the status of the Y-12 ISM System is the lack of clear roles and responsibilities and associated implementing mechanisms for evaluation and improvement of the System. The Production Team has not yet developed a strategy as to how the status of implementation of the Y-12 site-wide system will be analyzed or how the system will be maintained and strengthened. Several documents such as the system description (Y15-635PD), the program description (Y15-636), the LMES Organizational Roles, Responsibilities, and Interface description (Y/AD-641-R3), and the ESG Charter discuss the responsibilities for the system, but none provide clear expectations as to the evaluation of the status of the system at either the site level or the organizational level. This situation is discussed further in MG1. Without the ability to clearly analyze the status of the system, there can be only limited effectiveness to improve the system (MG3-8).

Issues management is not effective. The issues management tracking system is effective. However, the management aspects of determining basic causes for the issues, development of corrective action plans, execution of the corrective action plans, and confirmation of the effectiveness of the corrective actions are not always adequate. This is particularly true when the issue is complex or broadly based such as those associated with the SIP, the NaK Corrective Actions, the ISMS Phase II Verification, or the 1999 LMES ISMS annual update review (MG3-7). The conclusion is based on review of the repetitious nature of the issues identified during this review in comparison with those in 1998. Additional credence to the conclusion is drawn from the discussion on implementation of Mission Success. The LMES ISMS Independent Assessment noted that “[s]everal corrective actions from the LMES Response to the DOE Type A Investigation of the December 1999 Sodium-Potassium explosion require additional follow-up and clarification.” An evaluation of the ESAMS record for the corrective actions of the SIP and the 1998 ISMS Verification report indicate that the depth and breadth of actual corrective actions is less than the apparent, more “global” intention of the management corrective action or root cause statement. Global or programmatic corrective actions tend to be subdivided into discrete actions and entered into ESAMS. Frequently, the responsible individual is not the line manager with ultimate responsibility for the activities or programs that require correction. In some cases, the sum of the individual actions does not add up to the identified programmatic issue. The closure of the actions frequently comes through a program directive change or an assessment. If a program change is specified, no follow-up is required to determine the adequacy of the program once the change is implemented. If the action is an assessment, no follow-up corrective actions are specified as a correction to the initial issue to resolve the issues of the assessment. Finally, there is little evidence that action is taken as required to validate the effectiveness of the corrective actions once they are completed. It was also noted that in many instances, the corrective actions reflected a narrow view of the issue. The details in the body of the report were

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not reviewed to ensure that the action would be effective and would deal with the true root cause as well as possible peripheral issues.

The primary role of the Compliance Operations Safety Board (COSB) as described in the COSB Charter is to ensure that the feedback and continuous improvement function of the ISM System is consistently implemented via the Y-12 Issues Management Program. The COSB deals with crosscutting issues and receives recommendations from the Issues Management Prioritization Review Board (IMPRB). The COSB Charter assigns senior managers as members. The minutes of many meetings of the COSB indicated that the senior managers frequently did not attend the meetings. Meeting minutes were routed to the senior managers for concurrence after the meeting was over.

Minutes from the COSB Meetings show that the COSB assigned actions. However, no indication was apparent that the COSB checks on progress of actions. In November 1999, the COSB discussed the issue “appropriate rigor is not always evident during the administrative preparation, execution, and completion of work packages.” The COSB agreed that this was a plant-wide issue and stated that it would be addressed in the corrective action plan for this issue. This same problem received a great deal of attention during the LMES review in August 2000 so it appears that the corrective actions have not been effective.

Some issues identified in previous ISMS verifications, the annual update review, and the SIP were not effectively addressed. Several factors appear to contribute to this situation. In the case of the SIP, the commitments were often vision statements or broad strategic initiatives. The resulting actions to fulfill the visions were not always sufficiently broad or in-depth to achieve the vision described in the SIP. In addition, there is no provision in the SIP, or the corrective action plans from which the SIP was developed, to conduct a detailed follow-up assessment to determine whether the corrective actions achieved the results of the initial vision statement. In this case of the ISMS Verification reports, the corrective actions were assigned to the individuals who did not always understand the desired outcome of the actions as indicated by the immature implementation status of the ISMS reported in the verification report. In this case, there was a follow-up assessment to determine the success of the initial corrective actions that indicated the actions were not successful in achieving mature implementation of ISMS. In response to the follow-up assessment, corrective actions similar to those that were not initially successful were again specified. It appears that the corrective actions for both ISMS assessments were narrow and shallow. Little effort is apparent to analyze the reports to determine the details and the breadth of the opportunities for improvement that were identified. Thus the affect of the corrective actions was narrow and not effective in furthering the mature implementation of the ISM System at Y-12 (MG3-7).

Conclusion and Summary: The criteria were not met.

#### Provide Feedback and Continuous Improvement

The ISM System at Y-12 is not effectively implemented within the function of provide feedback and continuous improvement. The sitewide Management Assessment program is not effective. The requirements of the implementing mechanism are not in place. Analysis and reporting of information and trends from the management assessment efforts across Y-12 is not occurring as envisioned by the implementing mechanism. Organizational level management assessment

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programs have wide variations of effectiveness. In addition, the individual organizational management assessment programs are different from each other in form and process so that limited integration is possible. In two discrete instances, noteworthy practices were identified. The quality and the effectiveness of the individual programs varied from good to ineffective.

The Mission Success initiative that was envisioned “..to formalize senior management independent assessment function and ISM performance measuring” has not met that vision. In fact, senior management has no program or initiative to provide independent assessment and ISM performance measurements to determine the status of the ISM System implementation and provide information that is useful in determining necessary corrective actions and system changes.

An important aspect of feedback and continuous improvement is the timely identification and effective resolution of issues and less than adequate conditions associated with the ISM System. This aspect of the ISM System is not always effective as indicated by the lack of improvements noted in the implementation of the ISM System since the initial verification and the narrow and ineffective corrective actions resulting from the SIP and the NaK corrective action plan.

#### Clear Roles and Responsibilities

There is a lack of clear roles and responsibilities associated with evaluation of the status of the Y-12 site-wide and organizational ISM Systems. Multiple plans and charters assign or imply responsibilities for the ISM System, but none of the documents provide a clear discussion of the roles and responsibilities to determine the condition of the system or expectations for processes to improve the system. Failure to have clear roles and responsibilities for the feedback and improvement function for the ISM System is a contributing cause for the inconsistent level of maturity of implementation across the site. It is also a contributing cause for the lack of progress in achieving maturity of implementation in some organizations.

#### Line Management Responsibility for Safety

The LMES ISMS Independent Assessment and this verification, as well as the ISMS internal assessments identified that Management Assessment Programs were not effective. Although as identified above, many mechanisms for feedback and improvement are inadequate, not implemented, or not developed, that does not excuse the line managers from the responsibility for feedback and continuous improvement. The LMES ISMS Independent Assessment also identified “there was a lack of consistent site-wide line management knowledge, accountability, and responsibility on a day-to-day basis for ongoing operations and support requirements.” In aggregate, these conditions and observations lead to the conclusion that line managers are not exercising their responsibilities for safety, at least within the function of feedback and continuous improvement.

#### Issues

#### Noteworthy Practices

MG3-1      The management assessment monthly reports prepared by the EUO Assessment coordinator provided timely and useful information to EUO management. Data included trends and metrics to assess performance in a number of areas of interest.

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MG3-3 Capturing the data from the supervisory self-assessments in the workplace, analyzing that data, and providing the useful information through the MMO weekly safety bulletin is considered to be a noteworthy practice.

Opportunities for Improvement

MG3-2 The Management Assessment program in the Maintenance Organization is not effective. The Maintenance Organization Management Assessment Program Improvement Plan developed in response to the ISMS Self Assessment is not adequate to gain the necessary improvements.

MG3-4 The available mechanisms are not effective in providing an accurate status of the site-wide ISMS. Furthermore, the mechanisms do not provide useful information with which senior management can effect change or improvements in the Y-12 ISM System.

MG3-5 Mission Success, as currently implemented and operating does not achieve the vision stated in the SIP “..to formalize senior management independent assessment function and ISM performance measuring.”

MG3-6 The MA program does not fulfill the function for the feedback and improvement as ascribed to it in the ISM System Description. The LMES Team also identified this issue.

MG3-7 Issues management is not effective, particularly with regard to the management aspects of determining basic causes for the issues and confirmation of the effectiveness of the corrective actions. In response to both ISMS assessments, the corrective actions for the opportunities for improvement were narrow and shallow.

MG3-8 A contributing cause for the lack of an integrated evaluation of the status of the Y-12 ISM System is the lack of clear roles and responsibilities and associated implementing mechanisms for evaluation and improvements of the System.

Inspected by: _____ William Hicks/Jennifer Clay	Approved by: _____ Joseph King ISM Team Leader
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<b>Functional Area: MG</b>	<b>Criteria Met</b> ____ <b>Yes</b> <u><b>X</b></u> <b>No</b> <b>Date:</b> August 29, 2000
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**OBJECTIVE: MG.4** Performance objectives and criteria (POC) guidance for LMES and DOE assessments focus the reviews on the adequate implementation of the core functions and the principles of Integrated Safety Management in a manner consistent with the approved ISMS description. ISMS assessments utilize the POCs. (CCE-8)

Criteria

1. POCs for LMES management self-assessments and independent assessments focus the reviews on the adequate implementation of the core functions and principles of Integrated Safety Management in a manner consistent with the approved ISMS description (procedures Y60-902, "Management Assessment," and Y60-903, "Independent Assessment").
2. Assessments that utilize the POCs evaluate the results in terms of implementation of ISMS within the scope of the specific review.

Approach

Record Review: Review the management self-assessment program (procedure Y60-901PD, "Energy Systems Assessment Program Description") to ensure assessments reflect adequate implementation of the core functions and principles of Integrated Safety Management in a manner consistent with the approved ISMS description (procedure Y15-635PD, "Energy Systems Integrated Safety Management System") and utilize the POCs.

Review all LMES assessment, review, and evaluation programs such as Y15-190 to determine that the POCs or equivalent evaluation aids including checklists reflect the principles and functions of ISMS.

Review assessment results to determine the degree to which the ISMS Related POCs are utilized and the degree to which the conclusions of the assessment evaluate the effectiveness of the ISMS implementation.

Interviews: Interview Managers responsible for assessment programs including management assessments and self-assessments, assessment team leaders and advisors to evaluate their understanding of the purpose for tailoring the POCs and equivalent evaluation tools to reflect ISMS. In addition, discuss their use of the POCs or equivalent during assessments they lead or for which they are responsible.

Observations: None

Records reviewed:

- Y15-635PD Integrated Safety Management System (ISMS) Description
- Y/AD-641-R3 LMES Organizational Roles, Responsibilities, and Interfaces
- Lockheed Martin Energy Systems (LMES) Organization Charts
- Y/MA-645 LMES ISMS Independent Assessment Report August 2000

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- Facility Evaluation Board (FEB) Evaluation of Development, March 27-31, 2000
- Y/DA 9598 ISMS Self Assessment Report for the Development Division, July 2000
- Memorandum from H.T. Conner to E.J. Bergin, ISMS Internal Review-Amended, Dated August 18, 2000
- Memorandum from Paul Wasilko to Harold Conner, Response to May 3, 2000 Request: Integrated Safety Management at Y-12
- Y15-006 Mission Success Evaluations, dated 6/13/00, Effective Date July 31, 2000
- Memorandum from C.K. Stalnaker to E.J. Bergin, Roles and Responsibilities of the Mission Success Organization, Dated May 8, 2000
- Memorandum from E. J. Bergin to C. K. Stalnaker, The Mission Success Organization, dated April 24, 2000
- Memorandum from C.K. Stalnaker to E.J. Bergin, Quarterly Report of Mission Success Organization Activities, dated July 24, 2000
- Safety Organization FY 2001 Assessment Schedule
- FY-2001 ES&H Program Element check lists for Management Assessment Programs
- FY-2000 ES&H Program Element check lists for Management Assessment Programs
- Special Materials Organization (SMO) Assessment Schedule Status Report
- NCSO Management Assessment Program Metrics
- ISMS Self Assessment reports
- FEB Performance Objectives and Criteria

#### Interviews:

- Director, Manufacturing
- Director, EUO Operations and Restart
- Director ES&H
- Director, Quality
- Manager, EUO Operations
- Manager, EUO Assessments
- EUO Infrastructure Operations Manager
- EUO Chemical Recovery Operations Manager
- EUO Restart Manager
- EUO Criticality Safety Officer
- Manager, MMO
- MMO Assessments Coordinator
- MMO Technical Support lead
- Manager SMO
- SMO Operations Manager
- SMO Technical Support Manager
- Manager, Criticality Safety
- Assembly Criticality Safety Officer
- Manager, Development
- Manager Safety
- Manager, Maintenance Division (2)
- Maintenance Organization Assessment Coordinator

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- Industrial Safety Assessment Coordinator
- Assembly Facility Manager
- Warehouse Facility Manager
- Manager Assembly
- Manager Mission Success (FEB)
- Issues Management Coordinator
- Lessons Learned Coordinator
- LMES ISMS Independent Assessment Team Leader

Observations: None.

#### **Discussion**

Review of the various management self-assessment performance objective and criteria documentation shows very limited focus on the functions and principles of ISM (MG4-1). The majority of the checklists and criteria and review approach documents (CRADs) reflect attributes of conduct of maintenance and conduct of operations or compliance and regulatory subjects. Within the ES&H Program Elements for the Management Assessment Program (MAP) promulgated for consideration in the FY 2001 Management Assessment Programs, 15 assessment questions are provided under the title of ISMS. It is noted, however, that 13 questions are associated with the OSB status within the organization. The degree to which ISMS is evaluated through the questions will not provide the necessary data to permit drawing any conclusions about the status of the ISM System within the organization. Similarly, the aggregate of the results from these questions across the site will not provide data from which information as to the status of the Y-12 ISM System could be determined. The Functional Area Manager (FAM) for conduct of operations has provided POCs to evaluate the status of conduct of operations as a part of the individual organizational MAP. The POCs are an appropriate aid for assessment of the status of conduct of operations, but are not directly tied to the functions and principles of ISM. In conjunction with other MAP POCs, they would be a useful input to an overall determination of the status of the ISM System within an organization, or in aggregate would provide an input to determination of the status of the Y-12 ISM System. Individually, they provide only limited information as to the status of the ISM System.

The FEB conducts unannounced assessments as well as scheduled evaluations. The assessments are guided by POCs tied to functional areas such as maintenance, management, quality assurance, operations, radiation protection, occupational safety and health, etc. The key mechanisms of the Y-12 ISM System are not the focus of these POCs. For example, the maintenance POC does not discuss development of work packages with emphasis on definition of work, identification of hazards, or development of controls. The Operations POC does not focus attention to implementation of the key implementing mechanisms of the ISM System relevant to operations. Management Systems POC focuses attention on management policy, commitment, accountability, and resources to implement the ES&H programs. No criterion mentions ISMS. A single criterion within the management systems POC addresses issues management. Another single criterion within the quality assurance POC discusses the MAP (MG4-1). A review of the latest reports of FEB evaluations determines that there is no mention of the status of the ISM System, nor are any conclusions drawn from the aggregate of the evaluation as to the status of the ISM System within the organization being evaluated. Similarly,

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the Quarterly report of Mission Success Organization (FEB) activities reports twenty-six unannounced observations and two facility evaluations. Nowhere in that report are there indications that any review considered the status of the ISM System at the facility, nor are any conclusions drawn as to the status of the Y-12 ISM System.

It is important to acknowledge that the FEB is an important part of the feedback and improvement process at Y-12. Although discussions in MG3 and MG4 are critical of the maturity and the focus of the FEB activities, it is nevertheless an important feedback and improvement mechanism that should be retained and improved to fulfill the vision of the concept of Mission Success.

It is also noted that two recent assessments, one a special management self-assessment and the other an independent assessment, were focused directly on ISMS functions and principles and the ISMS implementing mechanisms at Y-12. The review criteria for both assessments were focused directly on the ISMS principles, functions, and implementing mechanisms. It is also recognized that a similar independent assessment conducted in 1999 used CRADs focused directly on ISMS functions and principles. However, no effort is noted to incorporate the elements of the POC/CRAD used in the special ISMS assessments into the POCs that are used in the MAP, the FEB, or other independent assessments (MG.4-1).

As discussed above and in MG3, neither the MAP, the FEB, or independent assessments have evaluated the status of implementation of the ISM System within the organization or across the site (MG.3-4).

It is also appropriate to note that in 1999 and again in 2000, LMES conducted an ISMS independent assessment. The CRADs were uniquely designed to evaluate the status of implementation of ISMS. The report of the LMES Independent assessment in 1999 provided specific conclusions as to the status of implementation. As noted in MG3, the 2000 LMES ISMS Independent Assessment did not draw conclusions as to the status of ISMS across Y-12, although conclusions as to the status of ISMS at the organizational level were drawn. The conclusion from the review of the record of the LMES ISMS Independent Assessments is that they provide an accurate report of the status of implementation of the ISM System at the organizational level and at the Y-12 site level. As discussed in MG3, the lack of aggressive corrective actions is the area of concern, (MG3-7) not the assessments. In fact, the LMES ISMS Independent Assessment process is a strength that should be retained as an integral part of the Y-12 ISM System feedback and improvement function until the routine assessment processes provide the same accurate information as to the status of the ISM System at the organizational and Y-12 Site level (MG.4-2).

In anticipation of the LMES ISMS Independent Assessment and the DOE ISMS Phase II Verification, LMES conducted a focused ISMS Internal Review to determine the status of the ISM System at the organizational level. The Internal Review was conducted using specially prepared criteria that permitted a focused evaluation of the status of implementation of the ISM System. Anecdotal information indicated that the Internal Review was a very positive forcing function to improve the awareness and understanding of the individual members of the management teams and workforce within the individual organizations. The understanding of

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ISMS principles and functions, and how they were implemented through the organizational processes was increased. It should also be noted however, that the accuracy of the conclusions as to the status of implementation of the ISM System was proportional to the actual level of maturity of the implemented system. Those organizations with a more mature system determined a much more accurate and candid conclusion from the ISMS Internal Review than those organizations in which the implementation status is incomplete or immature. While this observation should not be a surprise, it does reinforce the need for a site level assessment or analysis with a consistent standard in order that the organizations with the less mature implementation receive appropriate recognition and remedial support and mentoring. The ISMS Internal Review utilizing specific assessment criteria is a strength that should be repeated on a periodic basis until the MAP and the Mission Success Organization (FEB) gains the maturity of assessment criteria to effectively determine the status of implementation of the ISM System within each organization and across the Y-12 site (MG.4-2).

It is also apparent that the current process that includes an extensive MAP and FEB as well as the special LMES ISMS Independent Assessments and the plant wide focused self-assessments/internal review is inefficient. If properly structured and focused, the MAP, Mission Success/FEB, and independent assessments should permit a determination of the status of implementation of the ISM System at the organizational and Y-12 site level. The failure of the existing MAP and Mission Success/FEB to permit this determination is the basis for MG3-4, MG.3-5, and MG.3-6.

Conclusion and Summary: The criteria for this objective have not been met.

#### Provide Feedback and Continuous Improvement

The POCs and CRADS utilized in the MAP and the Mission Success Organization (FEB) do not focus the reviews on the adequate implementation of the ISM System at the organizational and Y-12 site levels (MG4-1). The CRADs and POCs utilized for the LMES ISMS Independent Assessment and the ISMS Internal review did include appropriate criteria to permit a determination as to the status of implementation of the ISM System within the specific facility or across the Y-12 Site. The current situation with two sets of CRADs and two sets of assessments is both inefficient and inconsistent with the integration that is the integral aspect of the ISM System. However, until such time as the MAP and Mission Success/FEB efforts mature to support the feedback and improvement function of the ISM System, it will be necessary to accept the inefficiency in order to meet the commitments within the ISM System Description.

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Issues

Noteworthy Practices

MG.4-2 The LMES ISMS Independent Assessment process as well as the ISMS internal reviews are a strength that should be retained as an integral part of the Y-12 ISM System Feedback and Improvement function until the routine assessment processes provide the same level of information as to the status of the ISM System at the organizational and Y-12 Site level.

Opportunity for Improvement

MG.4-1 The POC/CRADs currently used by the MAP, the FEB, and routine independent assessments do not evaluate the status of the ISM System within the organization being assessed.

<div>Inspected by: _____</div> <div style="text-align: center;">William Hicks</div>	<div>Approved by: _____</div> <div style="text-align: center;">Joseph King ISM Team Leader:</div>
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<b>Functional Area: OP</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 29, 2000
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**OBJECTIVE: OP.1** Work activities reflect effective implementation of the functions of ISMS. Work is defined, and hazards are identified. Controls are developed and implemented. Work is properly authorized and is accomplished within controls. Appropriate worker involvement is a priority. Work means all maintenance, operations, experiments, etc. that occur at the Facility level. (DOE Team will evaluate this CCE for a set of selected facilities) (CCE-3 and CE II-1, -2, -3, -4)

Criteria

1. The process to define work and identify hazards is effective, implements SIP work control process corrective actions, and provides the following:
2. Work scope is defined and hazards identified.
3. Hazard analysis results in appropriate controls for hazard mitigation being developed by OSB members, including workers, and approved by line managers.
4. Workers actively participate in the work planning process.
5. Procedures and maintenance work plans are generated in accordance with plant procedures.
6. Work activities demonstrate effective integration of safety management.
7. There is a process used to gain authorization to conduct work.
8. The Operational Safety Board (OSB) process is implemented and effective in implementation of the work control functions of ISMS.

Approach

*NOTE: This CRAD will be used to evaluate a set of selected facilities/activities not being reviewed by the LMES ISM Independent Assessment Team.*

Record Review: Review work control processes that govern the planning, authorizing, and conduct of work, with emphasis on OSB participation and execution of maintenance or operational activity (procedures Y14-001INS, "Conduct of Operations Manual"; Y15-187, "Integrated Safety and Change Control Process"; Y15-190, "New Activity Start-up Requirements"; Y15-635PD, "Energy Systems Integrated Safety Management System"; Y15-636, "Integrated Safety Management Program"; and Y18-35-008, "The Planner's Guide";).

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Evaluate work scope identification; hazard identification (procedure Y15-012, “Hazard Identification Planning”), analysis (procedure Y73-043, “Job Hazard Analysis”), and identification of controls; and work procedure development and content (procedures Y15-202, “Technical Procedure Process Control”; Y15-203, “Writer's Guide for Y-12 Plant Technical Procedures”; and Y15-204, “Work Instruction Process and Development”). Evaluate the adequacy of the division of responsibilities, worker involvement, and work authorization process. Review execution of the procedure verification and validation process (procedure Y15-202, “Technical Procedure Process Control”). As a minimum, review these details on effective and recently completed maintenance packages and operations, reviewing procedure files and noting if feedback and improvement process is effective.

Interviews: Interview personnel responsible for authorizing, performing, and measuring the performance of the work. [This should include personnel such as those responsible for preparing and maintaining documents such as Y15-190, “New Activity Startup Requirements,” Maintenance Job Requests, Plan of the Day (POD), equipment status files, operating procedures, pre-job briefings, and the conduct of facility or activity operations.]

Interview personnel responsible for development of maintenance or individual activity procedures and controls. Verify adequate subject matter expert (SME) and worker involvement as appropriate at each step of the process.

Observations: Observe maintenance and operational work planning and work control processes with particular attention to identifying the level of worker involvement. [This observation should include such things as job hazard identification (procedure Y15-012, “Hazard Identification Planning”), job hazard analysis and development of controls (procedure Y73-043, “Job Hazard Analysis”), PPE requirements development (procedure Y73-116INS, “Personal Protective Equipment Program.”), validation of procedures (procedure Y15-202, “Technical Procedure Process Control”), etc.]

Observe the actual authorization and performance of maintenance and operational work activities. (This should include such items as pre-job briefings, authorization by the managers to proceed, use of PPE, and implementation of other identified controls, etc.)

Observe Operational Safety Board (OSB) activities (procedure Y15-636, “Integrated Safety Management Program”) associated with implementation of the functions of the ISMS, specifically noting SME performance, worker involvement, and line management participation and direction.

Observe other activities/meetings associated with implementation of the functions of ISMS as time and availability permit. Examples include criticality safety, central safety committee, and Executive Steering Group/Senior Leadership Team activities (procedure Y15-635PD, “Energy Systems Integrated Safety Management System”).

Observe implementation of programmatic requirements such as, criticality safety, industrial hygiene, radiological control, and environmental management.

## ISMS ASSESSMENT FORM

### Y-12 Phase II

Records reviewed:

#### Y-12 Plant

- Y14-001INS Conduct of Operations Manual (04/28/00)
- Y15-012, Hazard Identification Planning (04/24/00)
- Y15-187, Integrated Safety and Change Control Process (04/28/00)
- Y15-190, New Activity Start-up Requirements (04/25/00)
- Y15-202, Technical Procedure Process Control (04/27/00)
- Y15-204, Work Instruction Process and Development (04/12/00)
- Y15-635PD, Energy Systems Integrated Safety Management System (08/14/00)
- Y15-636, Integrated Safety Management Program (04/25/00)
- Y18-35-008, Planner's Guide (04/30/00)
- Y18-004INS, Work Control Process Manual (04/26/00) (EUO Pilot Program)
- Y73-043, Job Hazard Analysis (04/24/00)
- Y74-809, Unreviewed Safety Question Determinations (03/29/00)
- Y74-801INS, Hazard Identification (03/01/00)
- Y90-027, Conduct of Training Procedure (04/28/00)

#### EUO

- Y/MA-7255 Rev 15, The Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex (06/00)
- Y/MA-7351, Enriched Uranium Operations and Restart Operational Roles and Responsibilities (08/10/00)
- Y/MA-7398 Rev 3, Operational Safety Board Charter 9212 Complex (07/00)
- Y/MA-7573 Rev 5, Y14-001INS Documentation of Decisions and Delegation of Authority (07/31/00)
- Y14-37-022, Deficient Condition Identification (11/15/99)
- 9212 Complex Plan of the Day 08/17/00
- Y/MA-7270, EUO Material Handling Containers

#### Development

- Y/TIS-0002, Technical Operations Division Roles and Responsibilities (08/00)
- Y/TIS-0003, Technical Operations ISM Self-Assessment Corrective Action Plan (08/00)
- Y/DA 9598, Integrated Safety Management Self-Assessment Report for the Development Division (07/00)
- Conduct of Operations Manual Record of Decision for Implementation (08/31/99)
- Development Division Building 9202/9203 Beryllium Operations Plan of the Day August 18-24, 2000
- Development Division Maintenance Priority list updated 08/15/00
- Standing Work Package 8607 (mechanical activities) (12/07/98)
- Standing Work Package 8608 (electrical activities) (10/28/98)

**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

Utilities

- Conduct of Operations Manual Index of Record of Decisions (various dates starting 04/05/00)
- Y50-35-OP-2200 Rev 0, East Fork Poplar Creek (EFPC) and Lake Reality Operations (11/20/98)
- Operational Safety Board Charter Utilities and Infrastructure Management (07/00)
- Corrective Action Plan for Failure of Brine Pump J-107 in Building 9767-13 (undated)
- Draft Corrective Action Plan Update for Failure of Brine Pump J-107 in Building 9767-13 (undated)
- Utilities Operations Department Qualification Standards for General Supervisor (new 08/21/00), Shift Supervisor (Rev 2 08/21/00), Utilities Coordinator (new 08/22/00), and Stationary Engineer (Rev 2 02/04/00)
- Utilities Operations Department daily operating schedule for 08/22/00
- Utilities Operations Department Watch Qualification and Proficiency record for August 2000.

9204-4 Quality Evaluation

- Building 9204-4 Plan of the Day – Facility Support (08/21/00)
- Y/OA-6263 Rev 1, Memorandum of Understanding between Disassembly and Storage Organization and the Depleted Uranium Operations Organization (06/13/97)

9215 Complex (M&O Wings)

- 9215 Complex POD 08/19-08/21
- 9215 Work Packages

MJR# YF 131521

MJR# YF 131527

MJR# YF 131528

MJR# YF 131529

MJR# YF 131530

MJR# YF 131531

MJR# YF 131532

Hazard Identification Checklist for Battery PMs

Supplemental JHA Form

- MOCC LCM-081600-01
- MOCC LMC-081700-01

9204-2 Complex (SMO)

- Operational Safety Board Charter 9204-2 Complex (08/02/00)
- SMO POD 08/16/00
- Work Package YW016635
- SMO Qual Card Report (SAP printout) for Operations Manager, Facility Support Manager, 2 Shift Managers

**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

9204-2E Assembly and Disassembly

- Criticality Safety Approvals (CSA)
- Disassembly and Assembly Procedures
- 9204-2E Plan of the Day
- Job Hazards Analysis
- Beryllium Work Permits
- Radiation Work Permits
- NCSD Corrective Action Report for Deficiencies and Minor Noncompliances
- Work Area Assignment Report
- Shift Manager/Shift Supervisor Briefing Checklist
- Assembly Division Training Development and Administrative Guide
- Assembly Division Continuous Training Evaluation Program Guide
- Proficiency Records
- Training Records

Interviews:

- EUO Operations Manager
- EUO Chemical Recovery Operations Manager
- EUO Work Control Manager
- EUO Maintenance Coordinator
- SMO Operations Manager
- SMO Shift Managers (2)
- SMO Building Manager
- Site Maintenance Supervisor (SMO Support)
- Development Senior Manager
- Development Building Manager
- 9204-2E Shift Manager
- Disassembly Supervisor
- Disassembly Operators (2)
- 9215 Maintenance Coordinator
- 9215 M-Wing Machine Shop Supervisor

Observations:

- SMO Plan of the Day for 08/15/00
- 9215 M&O Wings Plan of the Day for 08/19/00
- In progress SMO maintenance activity in Building 9204-2 (Work Package YW016635)  
Machine #29 Glove Box – Replace one window, gloves, filters, and spindle boot.
- 9204-2E Disassembly Operation
- 9204-2E Assembly Operation
- 9215 Machine Shop response to a criticality safety concern

## ISMS ASSESSMENT FORM Y-12 Phase II

### Discussion

The Plans of the Day (POD) for five organizations were reviewed. The basic guidance for the Plan of the Day process is contained in Y14-001INS Conduct of Operations Manual, Chapter 2.2. This guidance states in part that the POD process shall be used to authorize and coordinate the integration of operations, construction, and maintenance work. Further expectations include that each operating facility shall hold a daily, regularly scheduled POD meeting that (1) addresses the work and supporting activities which impact the facility, and that (2) activities to be worked in the facility shall be listed on the POD as authorized before they are permitted to take place. The application of this guidance varies considerably. The 9212 Complex POD is issued daily and lists operations and maintenance activities as well as a defined set of routine activities that can be conducted without further authorization. The Development organization has a POD for its Beryllium operation only. The remainder of the Development organization has a maintenance priority list that is updated once each week and does not include operational activities. Most other organizations have a daily POD process that only includes maintenance activities (OP1-1).

Seven similar packages for battery preventive maintenance in Buildings 9215 and 9998 were reviewed and the responsible maintenance coordinator interviewed. A precaution listed in the job package instructions for one of the packages was the potential for shorting and arcing. In the associated Job Hazard Analysis (JHA) the shorting hazard was not listed. Since the package requires the inspection of connectors there is some hazard of shorting. The maintenance coordinator agreed that it was a potential hazard and withdrew the packages until Appendix D Job Hazard Identification checklist step 20 was changed to add the applicability and note the specific hazard and applicability of the safety goggles as protection for potential eye injury. The JHA was also amended to add the hazard of "Possible arcing if battery terminals shorted" and to include a barrier and control entry. The maintenance coordinator indicated that the reviews conducted using the Job Hazard Identification (JHI) checklist were somewhat faulty because the nearest applicable check item number was under "fire safety" rather than "electrical safety." This lead the original reviewer(s) away from indicating the existence of DC low voltage high current shorting hazard (OP1-2). Additionally, one package, YF 131521, was questioned since it did not have the approval of the maintenance coordinator. The maintenance coordinator indicated that this was an error and corrected the package by signing off the review step.

Two Standing Work Packages for maintenance support to the Development organization were reviewed, Standing Work Package 8607 (mechanical activities approved to start 12/07/98), and Standing Work Package 8608 (electrical activities, approved to start 10/28/98). The work scope for both included items such as "troubleshooting" and "repairing minor steam leaks" that should more appropriately be reviewed each time using the JHI/JHA processes outlined in Y15-012, *Hazard Identification Planning*, and Y73-043, *Job Hazard Analysis*. Both packages do contain disclaimers that list conditions that would require a separate work package but several of these conditions were stated in generalities such as the need for Health and Safety review and the need for additional planning. Additionally, some of the listed conditions such as repair to CAT I equipment seem to be out of date. The JHAs attached to the packages were undated and listed generic hazards such as "lockout any energy source that may cause a potential hazard," and

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### Y-12 Phase II

“ladder climbing.” Use of this type of package does not seem to meet the expectations of work control discussed in Y18-35-008, *Planner’s Guide*, Appendix B (OP1-3).

Several Operational Safety Board Charters were reviewed. The expectations and basic guidance for the Operational Safety Board (OSB) concept are promulgated in Y15-635PD, *Energy Systems Integrated Safety Management System*, and Y15-636, *Integrated Safety Management Program*. The basic guidance for OSB involvement in activities directs the Operations Manager, or System Owner or Organizational Manager to utilize the OSB as specified in the associated site procedures for planning of work activities, technical reviews of documentation, etc. A sample charter is provided. Most organizational OSB Charters follow the sample almost verbatim. This results in required OSB review of maintenance activity JHI/JHA and work package development only for maintenance that involves Grade 1 and 2 activities. Other involvement is at the direction of the Operations Manager. OSB involvement in maintenance activities below Grades 1 and 2 should be directed on a case basis to achieve consistency in hazards identification and development of controls (OP1-4).

#### Interviews:

Several Operations Managers and Shift Managers were interviewed. The Operations Manager interviews confirmed the limited use of the OSB to review maintenance work packages other than as required for Grade 1 and 2 jobs (OP1-4). Shift Managers stated that they signed for work start authority on the day that the maintenance activity was to start. Some indicated that daily authorization to continue was required for activities lasting more than one day while others stated that this was not necessary. Most Operations and Shift Managers indicated that only maintenance activities requiring a specific work package were listed on their POD (OP1-1).

The 9204-2E Shift Manager, Disassembly Supervisor, and two disassembly operators were interviewed. The Shift Manager was knowledgeable of work activities being conducted in the facility. He was aware of the actions to take when a Criticality Safety Approval (CSA) issue was raised. The Disassembly Supervisor was knowledgeable of the hazards located in the disassembly area and the barriers in place to control the hazards. The controls included engineered and administrative. The supervisor was aware of the work scope and procedure requirements for the jobs being worked in his area. The workers were knowledgeable of procedure requirements and the actions to take for abnormal conditions. They were aware of the hazards associated with their work and the barriers in place to control the hazards. The workers indicated they had participated in the work planning process for this work.

#### Observations:

An in-progress maintenance activity in Building 9204-2 SMO area was observed and the Shift Manager and Maintenance Supervisor were interviewed. The work scope included the replacement of one window, gloves, filters, and spindle boot on the Machine #29 Glove Box. The work was scheduled on the effective Plan-of-the Day and had an approved work package with appropriate hazard controls including a lockout/tagout. The work package had proper work start authorization. Both supervisors were knowledgeable of the ongoing work and of work control and authorization requirements.

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In Building 9215 M-Wing, the DOE ISM team member noted a dolly that was not properly identified by the dimensional inspection sticker. The dolly was labeled as a "Picture Frame Scrap Pan Dolly." The criticality safety container procedure, Y/MA 7270, EUO Material Handling Containers, lists only a Flat Bed Dolly. This error constituted a discrepancy in the nuclear criticality safety program. The Operations Supervisor instructed personnel to cease activities in the area of the deficiency and back off for resolution by Nuclear Criticality Safety. Criticality Safety provided guidance using the Memorandum of Conference or Communication (MOCC). The label discrepancy was corrected and operations were resumed.

Preparations of the Industrial Hygiene (IH) representatives for taking swipe samples of the dust on the two centerless grinders in M-Wing were observed. The samples were to be taken to obtain beryllium contamination readings. The IH representatives had obtained permission to enter the M-Wing area from the Shift Manager. They discussed with the M-Wing supervisor the activity they had planned. The M-Wing supervisor indicated that the Radiological Work Permit (RWP) that was being used may not be appropriate. The IH personnel left the area to determine proper RWP requirements from Radcon prior to performing the smear sample operations. The representatives properly used stop work authority when a question arose as to the applicable RWP for the job in question.

One disassembly and one assembly operation in Building 9204-2E were observed. The disassembly operation was conducted in a ventilation hood and the necessary pre-operational checks had been performed. Personnel were wearing the necessary personnel protective equipment which included safety glasses, paper suits, nitrile gloves, shoe covers, and anti-contamination clothing. The procedure was a Category II procedure and the correct revision. The work was performed in accordance with the procedure and the Criticality Safety Approval (CSA) requirements. The assembly operation was conducted at a lathe. The workers were wearing the necessary personnel protective equipment which included safety glasses and anti-contamination clothing. Barriers were in place and being used to prevent the rapid oxidation of uranium chips and protection of workers from rotating machinery. The procedure was a Category II procedure and the correct revision. The work was performed in accordance with the procedure and the CSA requirements. The Operations Supervisor was present at all times during the activity and provided adequate direction and oversight. During the operation, the disassembly supervisor observed a CSA deficiency. The deficiency was a 30-inch round assembly dolly and a 2 cylinder chip dolly had overlapped which affected the center to center spacing required by the CSA. The supervisor directed personnel to move back 15 feet and set up a control area around the affected area. He contacted the Shift Manager and criticality safety engineer. The criticality safety engineer directed the correction of the deficiency by use of a Nuclear Criticality Safety Division (NCSD) Corrective Action Report for Deficiencies and Minor Noncompliances which allowed the operators to separate the dollies. This deficiency could easily occur again in any storage array that contains a 2-cylinder chip dolly (OP1-5).

**Conclusion and Summary:** The criteria for this objective have been met.

The contractor ISMS description, Y15-635PD, *Energy Systems Integrated Safety Management System*, describes the process for conducting work at the facility/activity level. The discussion

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includes expectations and identification of implementing mechanisms for development, control, and performance of operational activities and maintenance work.

Implementing documents Y15-012, *Hazard Identification Planning*, Y73-043, *Job Hazard Analysis*, coupled with Y18-35-008, *Planner's Guide*, Y15-202, *Technical Procedure Process Control*, Y15-204, *Work Instruction Process and Development*, and Y14-001INS *Conduct of Operations Manual* provide the basic guidance for: defining work scope; identifying, analyzing and controlling hazards; developing work instructions/operating procedures; authorizing and conducting activities; and providing feedback for improvement.

As developed through review of records, interviews and activity observations by both the LMES Independent Team and the DOE ISMS Verification Team, implementation of this guidance can vary widely between organizational elements.

### Define the Scope of Work, Balanced Priorities

In most cases, work scope definition is adequate. The process to develop a Maintenance Job Request includes customer and maintenance formal agreement on scope and planning grade level. In at least one instance, Standing Work Packages that had been issued in late 1998 and have inappropriate work scope were still in use (OP1-3).

### Analyze the Hazards/Develop and Implement Hazard Controls, Hazard Controls Tailored to Work Being Performed

A precaution concerning the potential for shorting and arcing was listed in the job package instructions for battery preventive maintenance. The associated Job Hazard Analysis (JHA) did not address this hazard. The responsible maintenance coordinator indicated that the reviews conducted using the Job Hazard Identification (JHI) checklist were somewhat faulty because the nearest applicable item was under fire safety rather than electrical safety. This led the original reviewer(s) away from indicating the existence of DC low voltage high current shorting hazard. (OP1-2)

The expectations and basic guidance for the Operational Safety Board (OSB) concept are promulgated in Y15-635PD, *Energy Systems Integrated Safety Management System*, and Y15-636, *Integrated Safety Management Program*. The basic guidance for OSB involvement in activities directs the Operations Manager or System Owner or Organizational Manager to utilize the OSB as specified in the associated site procedures for planning of work activities, technical reviews of documentation, etc. A sample charter is provided. Most organizational OSB Charters follow the sample almost verbatim. This results in required OSB review of maintenance activity JHI/JHA and work package development only for maintenance that involves Grade 1 and 2 activities. Other involvement is at the discretion of the Operations Manager. As confirmed during interviews, few Operations Managers involve the OSB in review of maintenance activities for Grade 3 or 4 work. This results in missed opportunities to improve hazard identification and control processes as well as a mechanism for line management to evaluate how expectations are being met. OSB involvement in maintenance activities below Grades 1 and 2 should be directed on a case by case basis to achieve consistency in hazards identification and development of controls. (OP1-4)

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### Y-12 Phase II

During one observed evolution, the disassembly supervisor observed a CSA deficiency. The deficiency was a 30-inch round assembly dolly and a 2-cylinder chip dolly that had overlapped which affected the center to center spacing required by the CSA. Appropriate immediate actions were taken. The criticality safety engineer directed the correction of the deficiency by use of a NCSD Corrective Action Report for Deficiencies and Minor Noncompliances that allowed the carts to be separated. This deficiency could easily occur again in any storage array that contains a 2-cylinder chip dolly. (OP1-5)

#### Perform Work within Controls, Operations Authorization, Line Management Responsible for Safety

Most organizations are not fully implementing the site-wide guidance concerning Plans of the Day (POD). The basic guidance for the Plan of the Day process is contained in Y14-001INS, *Conduct of Operations Manual*, Chapter 2.2. This guidance states in part that the POD process shall be used to authorize and coordinate the integration of operations, construction, and maintenance work. Further expectations include that each operating facility shall hold a daily, regularly scheduled POD meeting that (1) addresses the work and supporting activities which impact the facility, and (2) that activities to be worked in the facility shall be listed on the POD as authorized before they are permitted to take place. The application of this guidance varies considerably. Most organizations have a daily POD process that only includes maintenance activities. (OP1-1)

#### Opportunities for Improvement

- OP1-1 Most organizations are not fully implementing the site-wide guidance concerning Plans of the Day (POD) in that most organizations have a daily POD process that only includes maintenance activities.
- OP1-2 The Job Hazard Identification (JHI) checklist was faulty because the nearest applicable item relating to the potential for shorting and arcing caused by low voltage/high current DC was under “fire safety” rather than “electrical safety”.
- OP1-3 Two Standing Work Packages that had been issued in late 1998 and had inappropriate work scope were still in use.
- OP1-4 The basic guidance for OSB involvement in activities directs the Operations Manager or System Owner or Organizational Manager) to utilize the OSB as specified in the associated site procedures for planning of work activities, technical reviews of documentation, etc. Few Operations Managers involve the OSB in review of maintenance activities for Grade 3 or 4 work. OSB involvement in maintenance activities below Grades 1 and 2 should be directed on a case by case basis to achieve consistency in hazards identification and development of controls.

**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

OP1-5      A CSA deficiency was noted in which a 30-inch round assembly dolly and a 2 cylinder chip dolly that had overlapped which affected the center to center spacing required by the CSA. The corrective action was to separate the carts. This deficiency could easily occur again in any storage array that contains a 2-cylinder chip dolly.

<div>Inspected by: _____</div> <div style="text-align: center; margin-top: 5px;">Michael Miller</div> <div style="text-align: center; margin-top: 20px;">_____</div> <div style="text-align: center;">Stanley Watkins</div> <div style="text-align: center; margin-top: 20px;">_____</div> <div style="text-align: center;">Christopher Chisholm</div>	<div>Approved by: _____</div> <div style="text-align: center; margin-top: 5px;">Joseph King</div> <div style="text-align: center;">ISM Team Leader</div>
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<b>Functional Area: OP</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 25, 2000
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**OBJECTIVE: OP.2:** Contractor line management infrastructure continues to support the principles of ISMS. Promulgated roles and responsibilities are clear. Line management is responsible for safety. Required competence is commensurate with responsibilities, and the technical and safety system knowledge of managers and staff continues to improve. (DOE Team evaluates this CCE for a set of selected facilities CCE-4 and CE II-6)

Criteria

1. Procedures and/or mechanisms are in place which define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place to ensure that personnel who supervise work have competence commensurate with their responsibilities based on training, qualification, and certification.
4. Procedures and/or mechanisms are in place that ensure that personnel performing work are competent to safely perform their work assignments based on training, qualification, and certification.
5. Performance of work activities is periodically observed and assessed by line managers. Line managers hold personnel accountable for their performance.
6. ISM line management leadership is established and functioning at both the company and the division level.

Approach

NOTE: This CRAD will be used to evaluate a set of selected facilities/activities not being reviewed by the LMES ISM Independent Assessment Team.

Record Review: Review facility or activity documents that define roles and responsibilities of personnel responsible for safety in accordance with the "Conduct of Operations Manual" (procedure Y14-001INS). Review position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained. (The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety.)

Review the procedures established to ensure that managers and the work force (including support staff) are competent to safely perform work.

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### **Y-12 Phase II**

Review any training or qualification material that support gaining or verifying competence to fill the positions.

Review the records of training, qualification, and certification, as applicable.

Review the management self-assessment program to determine if performance of work activities is periodically observed and assessed by appropriate levels of line management.

Review the status of SIP commitment for managers and supervisors to spend more time on the floor.

Interviews: Interview selected personnel at all levels of facility or activity management who are identified by the record review above. Verify their understanding of their roles and responsibilities and their commitment to ensuring that safety is maintained for all work at the facility or activity.

Interview a selected number of supervisors and workers to determine their understanding of competency requirements and their commitment to performing work safely.

Observations: Observe scheduled activities (such as weekly planning meetings, plans of the day, event critiques, safety training, safety meetings, and post- and pre-job briefs) that demonstrate clear roles and responsibilities are established and understood, line managers are actively involved with decisions affecting safety.

Records reviewed:

#### Y-12 Plant

- Y14-001INS Conduct of Operations Manual (04/28/00)
- Y15-012, Hazard Identification Planning (04/24/00)
- Y15-187, Integrated Safety and Change Control Process (04/28/00)
- Y15-190, New Activity Start-up Requirements (04/25/00)
- Y15-202, Technical Procedure Process Control (04/27/00)
- Y15-204, Work Instruction Process and Development (04/12/00)
- Y15-635PD, Energy Systems Integrated Safety Management System (08/14/00)
- Y15-636, Integrated Safety Management Program (04/25/00)
- Y18-35-008, Planner's Guide (04/30/00)
- Y18-004INS, Work Control Process Manual (04/26/00) (EUO Pilot Program)
- Y73-043, Job Hazard Analysis (04/24/00)
- Y74-809, Unreviewed Safety Question Determinations (03/29/00)
- Y74-801INS, Hazard Identification (03/01/00)
- Y90-027, Conduct of Training Procedure (04/28/00)

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EUO

- Y/MA-7255 Rev 15, The Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex (06/00)
- Y/MA-7351, Enriched Uranium Operations and Restart Operational Roles and Responsibilities (08/10/00)
- Y/MA-7398 Rev 3, Operational Safety Board Charter 9212 Complex (07/00)
- Y/MA-7573 Rev 5, Y14-001INS Documentation of Decisions and Delegation of Authority (07/31/00)
- Y14-37-022, Deficient Condition Identification (11/15/99)
- 9212 Complex Plan of the Day 08/17/00

Development

- Y/TIS-0002, Technical Operations Division Roles and Responsibilities (08/00)
- Y/TIS-0003, Technical Operations ISM Self-Assessment Corrective Action Plan (08/00)
- Y/DA 9598, Integrated Safety Management Self-Assessment Report for the Development Division (07/00)
- Conduct of Operations Manual Record of Decision for Implementation (08/31/99)

Utilities

- Conduct of Operations Manual Index of Record of Decisions (various dates starting 04/05/00)
- Y50-35-OP-2200 Rev 0, East Fork Poplar Creek (EFPC) and Lake Reality Operations (11/20/98)
- Operational Safety Board Charter Utilities and Infrastructure Management (07/00)
- Corrective Action Plan for Failure of Brine Pump J-107 in Building 9767-13 (undated)
- Draft Corrective Action Plan Update for Failure of Brine Pump J-107 in Building 9767-13 (undated)
- Utilities Operations Department Qualification Standards for General Supervisor (new 08/21/00), Shift Supervisor (Rev 2 08/21/00), Utilities Coordinator (new 08/22/00), and Stationary Engineer (Rev 2 02/04/00)
- Utilities Operations Department daily operating schedule for 08/22/00
- Utilities Operations Department Watch Qualification and Proficiency record for August 2000.

9204-4 Quality Evaluation

- 9204-4 Plan of the Day – Facility Support (08/21/00)
- Y/OA-6263 Rev 1, Memorandum of Understanding between Disassembly and Storage Organization and the Depleted Uranium Operations Organization (06/13/97)

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9215 Complex (M&O Wings)

- 9215 Complex POD 08/19-08/21

9204-2 Complex (SMO)

- Operational Safety Board Charter 9204-2 Complex (08/02/00)
- SMO Qual Card Report (SAP printout) for Operations Manager, Facility Support Manager, 2 Shift Managers

9204-2E Assembly

- Criticality Safety Approvals (CSA)
- Disassembly and Assembly Procedures
- 9204-2E Plan of the Day
- Job Hazards Analysis
- Beryllium Work Permits
- Radiation Work Permits
- NCSD Corrective Action Report for Deficiencies and Minor Noncompliances
- Work Area Assignment Report
- Shift Manager/Shift Supervisor Briefing Checklist
- Assembly Division Training Development and Administrative Guide
- Assembly Division Continuous Training Evaluation Program Guide
- Proficiency Records
- Training Records

Interviews:

- EUO Operations Manager
- EUO Chemical Recovery Operations Manager
- EUO Work Control Manager
- EUO Maintenance Coordinator
- SMO Operations Manager
- SMO Shift Manager - Lithium Process
- SMO Building Manager
- Development Senior Manager
- Development Building Manager
- 9204-4 Quality Evaluation Shift Manager
- 9204-4 Quality Evaluation Training Manager
- 9204-2E Shift Manager
- Disassembly Supervisor
- Disassembly operators (2)

## ISMS ASSESSMENT FORM Y-12 Phase II

### Observations:

- SMO Plan of the Day for 08/15/00
- 9215 M&O Wings Plan of the Day for 08/19/00
- In progress SMO maintenance activity in Building 9204-2 (Work Package YW016635)  
Machine #29 Glove Box – Replace one window, gloves, filters, and spindle boot
- 9204-2E Disassembly Operation
- 9204-2E Assembly Operation

### Discussion

#### Line Management Responsible for Safety / Clearly Defined Roles and Responsibilities

Record reviews, interviews and observations all reinforce the concept of line management responsibility for safety. At the facility operations level, the Conduct of Operations Manual, Y14-001INS, lists responsibilities for Operations Managers, Shift Managers and Shift Supervisors. In each case the responsibilities identified include elements such as “provides information direction and guidance to subordinates to ensure that work is accomplished safely” and “responsible for the performance of personnel assigned.” All supervisors interviewed stated that they had a responsibility for the safety of personnel in their facility. All facilities evaluated had some sort of mechanism to provide visitors with information on facility hazards. Most required escorts and sign-in sheets.

Roles and responsibilities at the facility operations level are not always clearly defined. In most cases, the roles and responsibilities are those listed in Y14-001INS, Conduct of Operations Manual. Several organizations have also developed their own roles and responsibilities documents which include additional duties. Additionally, programs such as the Operational Safety Board (OSB) require identification of roles and responsibilities for personnel acting as OSB members. In several instances these various mechanisms have lead to inconsistencies. For example, Y/MA-7351, Enriched Uranium Operations and Restart Operational Roles and Responsibilities, states that the Shift Manager will approve the Plan of the Day (POD) whereas the Conduct of Operations Manual states that the Operations Manager authorizes work on the POD (Y14-001INS Chapter 2.2). The EUO OSB Charter lists Authorization Basis Engineer as a core member, the Roles and Responsibilities document identifies positions of AB Manager, AB Developer, AB Development Engineer and AB Maintenance Engineer. No organizations specifically identify who has the responsibility for reviewing and approving maintenance work packages after they have been prepared but before the “approval to start” step (OP2-1).

Some personnel interviewed could not describe their roles and responsibilities in any detail and did not know where those roles and responsibilities were defined. However, in all cases, when asked specifically “Do you have any responsibilities for ...” the individual responded in an adequate manner (OP2-1).

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### Y-12 Phase II

#### Competence Commensurate with Responsibility

One disassembly and one assembly operation in Building 9204-2E were observed. Qualifications for the supervisor and assembly personnel performing the disassembly and assembly were up to date. The facility has controls in place to ensure personnel are qualified and proficient. These controls are defined in Y90-027, *Conduct of Training Procedure, Assembly Division Training Development and Administrative Guide*, and the *Continuous Training Evaluation Program Guide*. Proficiency was being tracked in the facility and these workers' proficiency was up to date.

Interviews with Operations Managers, Shift Managers, Maintenance Coordinators, Maintenance Supervisors and Training Managers indicate that there has been little or no training in the work control process and its various elements. In most cases the only exposure has been required reading. This is a significant contributor to the problems with maintenance work package development that have been identified by the various assessments and reviews that have taken place recently. The LMES Team review also confirmed this lack of training (OP2-2).

#### Provide Feedback and Continuous Improvement

Review of work packages and interviews with personnel indicated that the mechanisms available to provide post maintenance feedback are not being used. The LMES Team also identified this issue (OP2-3).

Conclusion and Summary: The criteria for this objective have been met.

#### Line Management Responsible for Safety/Clearly Defined Roles and Responsibilities

Roles and responsibilities at the facility operations level are not always clearly defined. In several instances there are inconsistencies between site-wide guidance in the Conduct of Operations Manual and individual organizational documents. Additionally, some personnel interviewed could not describe their roles and responsibilities in any detail. (OP2-1)

#### Competence Commensurate with Responsibility

There has been little or no training in the work control process and its various elements given to the personnel who are directly responsible for development, implementation, review or approval. In most cases the only exposure has been required reading. The LMES Team also identified this issue (OP2-2).

#### Provide Feedback and Continuous Improvement

Review of work packages and interviews with personnel indicated that the mechanisms available to provide post maintenance feedback are not being used. The LMES Team also identified this issue (OP2-3).

**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

Issues

Opportunities for Improvement

- OP.2-1 Roles and responsibilities at the facility operations level are not always clearly defined. In several instances there are inconsistencies between site-wide guidance in the Conduct of Operations Manual and individual organizational documents.
- OP.2-2 There has been little or no training in the work control process and its various elements given to the personnel who are involved in the process. This includes those directly responsible for development of work packages and their supervisors as well as the facility/customer personnel and line managers who review and approve the packages. In most cases the only exposure has been required reading. The LMES Team also identified this issue.
- OP.2-3 The mechanisms available to provide post maintenance feedback are not being used to develop improvements or lessons learned. The LMES Team also identified this issue.

<p>Inspected by: _____</p> <p style="text-align: center;">Michael Miller</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Stanley Watkins</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Christopher Chisholm</p>	<p>Approved by: _____</p> <p style="text-align: center;">Joseph King ISM Team Leader</p>
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**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

<b>Functional Area: SME</b> <b>LMES Review Verification</b>	<b>Criteria Met</b> <u>  X  </u> <b>Yes</b> <u>      </u> <b>No</b> <b>Date:</b> August 25, 2000
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**OBJECTIVE: SME.1** (LMES Review Verification): The results of the LMES ISM Independent Assessment provide a valid measure of the status of ISM implementation in the areas reviewed and are appropriate to use as input to the DOE evaluation. (This objective applies to the LMES Review evaluation of CCE-3, -4, -6, -7, -8)

Criteria

1. The LMES Criteria and Review Approach Documents (CRADs) used to evaluate Y-12 ISM implementation against the Continuing Core Expectations of DOE G 450.4-1A, Integrated Safety Management System Guide, have appropriate breadth and depth to evaluate the implementation of ISMS at Y-12 in accordance with the approved LMES Review Plan purpose and scope.
2. The LMES review was conducted in accordance with their Review Plan and associated CRADs.
3. The results of the LMES review and the conclusions drawn as to the status of Y-12 ISM implementation and effectiveness of recent Y-12 ISM corrective actions are appropriate.

Approach

Record Review: Spot check records reviewed by the LMES Team to develop their CRAD results. Evaluate the adequacy of the record set selected and the LMES review of those records based on the conclusions reached and the DOE Team determination.

Interviews: Observe selected LMES Team member interviews. Evaluate the scope and depth of the interviews in light of the conclusions reached and the DOE Team determination.

Observations: Observe selected LMES Team activities as they relate to the CCE being evaluated. These activities should include LMES Team meetings and Y-12 evolutions and meetings observed/attended by the LMES Team. Evaluate the scope and depth of the LMES Team observations in light of the conclusions reached and the DOE Team determination.

Records Reviewed:

- FY99 Training Plan for Site Maintenance Organization
- Metrology Lab calibration procedures.
- Metrology Lab work assignment sheets
- Optical Machinist training records
- Utility Operator Round Sheet

## **ISMS ASSESSMENT FORM**

### **Y-12 Phase II**

- 9204-2 Category II machining procedure
- Machining Specification Data Sheet
- Gas Plant Operating procedure
- Gas Plant Round Sheet

#### **Interviews:**

- Acting Manager, General Plant Maintenance
- Supervisors, Metrology Lab (2)
- Optical Machinist, Metrology Lab
- Electrician, Metrology Lab
- Supervisor, Site Maintenance
- Planner, Site Maintenance
- Planning Specialist , Site Maintenance (Supervisor)
- Manager, Site Maintenance, Compliance and Training
- Training Manager, Site Maintenance
- Machinist, 9204-2
- Machinist Supervisor, 9204-2
- Operators, Gas Plant 9204-2 (2)
- Operations Supervisor, Gas Plant 9204-2

#### **Observations:**

- Conduct of Contractor ISM Assessment of performance of Building 9204-2E Utilities rounds. Discussed issues with Contractor ISM Assessment Team member and asked questions of Utilities Operator and Y-12 Utilities Plant SOA.
- Conduct of Contractor ISM Assessment of MMO operations in 9215 M and O-Wings, and MCO operations in M-Wing. Discussed issues with Contractor ISM Assessment Team member and asked questions of the M&O-Wing personnel.
- Conduct of Contractor ISM Assessment of Steam Plant maintenance activities in the Y-12 Steam Plant. Discussed issues with Contractor ISM Assessment Team member and asked questions of the contractor supervisors and craftsmen.

#### **Discussion**

The subject matter expert sub-team assessing the LMES Review Verification observed Contractor ISM Team Members conducting a variety of interviews. One interview included two Metrology Lab supervisors, a machinist who calibrated an optic comparator, and an electrician who calibrated a counter timer. The supervisors were asked about the JHA performed for the work. The machinist was questioned about hazards associated with the work, category of the procedure, procedure compliance, authorizations required to perform the work, and the I Care, We Care Program. The electrician was questioned about hazards associated with the work, category of the procedure, procedure compliance, input he had in the development of the procedure, and the I Care, We Care Program.

## ISMS ASSESSMENT FORM

### Y-12 Phase II

Another interview included a 9204-2 machinist and his supervisor and two 9204-2 gas plant operators and their supervisor. The machinist was questioned about abnormal operating conditions and what action he would take and where this guidance was promulgated. Additionally, he was questioned about a machining operation. The supervisor was questioned about the training and proficiency of the machinist. The gas plant operators and their supervisor were questioned about procedure compliance, round sheet readings, Radiation Work Permit (RWP) requirements, and personnel protective equipment (PPE) use.

Another set of interviews included a maintenance planner, planning supervisor, maintenance supervisor, Site Maintenance training supervisors and a senior Site Maintenance manager. The Contractor ISM Assessment team member questioned these personnel about their roles and responsibilities and training they had received to accomplish those responsibilities. Additionally, he questioned the managers concerning training requirements for their subordinates.

Our sub-team observed a Contractor ISM Team Member assessing a utility operator conducting rounds for 9204-2E. During the course of round performance, the Contractor ISM Team Member evaluated performance of the round sheet data recording and frequently questioned the utilities operator to explain how the requirements were satisfied.

Our sub-team also observed a Contractor ISM Team Member assessing MMO operations in 9215 M and O-Wings, and MCO operations in M-Wing. The Contractor assessor observed performance of supervisor rounds in M-Wing and a machining operation. He also observed activities in the M-Wing basement involving the machine coolant system conducted by the EUO/MMO chemical operators.

We observed a Contractor ISM Team Member assessing Steam Plant maintenance activities in the Y-12 Steam Plant. These activities included the Maintenance and Operations daily pre-shift briefs, two maintenance jobs and one electrical calibration activity.

Conclusion and Summary: The criteria for this objective have been met.

#### Provide Feedback and Continuous Improvement

The contractor assessors were very thorough in their review. The contractor assessment followed the assessment plan and evaluated the appropriate areas in adequate depth. The assessment results were appropriate and properly reported. The issues found were brought to the attention of facility personnel for action, discussed in the daily contractor out brief, and noted as concerns in the assessment forms.

<p>Inspected by: _____ Stan Watkins</p> <p>_____</p> <p>Mike Miller</p> <p>_____</p> <p>Chris Chisholm</p>	<p>Approved by:</p> <p style="text-align: right;">Joseph King ISM Team Leader</p>
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**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

<b>Functional Area: DOE Project Management</b>	<b>Criteria Met</b> <u>    </u> Yes <u><b>X</b></u> No <b>Date:</b> August 29, 2000
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**OBJECTIVE: SME.2 DOE (Project Management):** The DOE ODP Project Management System and Project Management activities are effective and functioning at each level of the organization. Issues management is an integral part of the DOE ODP Project Management System so that issues are identified, evaluated, and effectively addressed as they arise. (CCE-1, -6 and CE II-5)

Criteria

1. DOE Project Managers are qualified and trained to the DOE ODP Project Management System. They review plans, schedules and resource assignments and assess progress on a day to day basis.
2. DOE Managers at all levels who are responsible for Project Management activities collect feedback information through self-assessment, monitoring against performance objectives, critiques/management reviews, external reports and routine observation.
3. DOE Project Managers monitor progress and identify improvement opportunities. Evaluation and analysis mechanisms include processes for translating information into improvement processes and appropriate lessons learned. Managers consider and resolve recommendations for improvement.
4. The DOE Issues Management program is effective. Issues are identified, evaluated, and addressed. An effective process exists to determine confirmation of closure action. There is a process to incorporate assessment findings and corrective actions into planning and/or training programs.

Approach

Record Review: Review processes and resulting information resulting from roll-up and analysis of feedback and improvement data as well as how the information is being used to cause improvements in Project Management activities at the Y-12 Site.

Review the evidence file and determine effectiveness of the Issues Management Program implementation and execution by selecting completed milestones from the corrective action plans.

Review the status of the Project Management System Corrective Action Plan and determine its effectiveness in improving the DOE ODP Project Management System. (Letter with 2 attachments, *Response to Project Planning and Execution Issues*, Robert I. Van Hook, LMES, to G. Leah Dever, DOE, March 3, 2000)

## ISMS ASSESSMENT FORM

### Y-12 Phase II

Review the DOE ODP Project Management System and the Project Management training and qualification program,

Review the closure of Project Management deficiencies identified by the management self-assessment program to determine if it is effective and if personnel are held accountable for their performance.

Interviews: Interview line managers responsible for Project Management activities to assess their knowledge and involvement in evaluating feedback information, developing corrective action plans and completing corrective action commitments.

Interview line managers to discuss participation in self-assessment and feedback program .

Observations: Observe management meetings that deal with review of Project Management activities and status of progress.

Records reviewed:

- Y15-187, *Integrated Safety and Change Control Process*, 4/28/00
- Y90-027, *Conduct of Training Procedure*, 04/28/2000
- Y30-601, *Contract Management Baseline Change Control Process*, 11/4/99
- ESS-CM-101, *Configuration Management*, Revision 0
- Y60-331, *Lessons Learned Program*, 04/17/2000
- Y60-902, *Management Assessment*, 03/15/2000
- Y17-001, *Engineering, Design, and Construction*, 03/17/99
- Y60-310PD, *Issues Management Program Description*, 06/14/99
- Y15-007PD, *Y-12 Defense Programs Assessment Program Description*, 5/11/99
- ORO O 430, Chg. 5, *Life Cycle Asset Management*, 07/07/99
- ORO O 360, Chg. 2, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, 10/05/98
- Y30-601, *Contract Management Baseline Change Control Process*, 11/4/99
- Y15-002, *Configuration Control Equipment Data Sheets*, 07/22/99
- ORO M 411.1-1C, *Level II FRAM*, 03/01/00
- Y/HEU-0001, Rev. 4, *HEUMF Draft PEP*
- Y/EN-6048, *Independent Project Review Report for SMRI*, March 2000
- IER-99-01, *Independent Project Review Report for 3500-TON Press*, December 1999
- LMES, ISMS, *Independent Internal Review Report*, August 00
- DOE 4700.1, Chg. 1, *Project Management System*, 6/2/92
- DOE M 413.X, *DRAFT DOE Program and Project Management Manual*, 8/13/00
- Y13-001, *Energy Systems Project Delivery Process*, 11/23/99
- Y13-002, *Energy Systems Project Management Program Description*, 11/23/99
- *Y-12 Design Authority Implementation Plan*, Rev. 1, 4/24/00
- *Draft LMES Capital Project Validation Review Plan*, 8/00
- Y15-635PD, *Energy Systems ISMS*, 7/27/00
- DNFSB Site Representatives Activities Report, July-August 00
- Y12-020, *Design Authority Policy*, 11/18/99

## **ISMS ASSESSMENT FORM**

### **Y-12 Phase II**

- Conduct of Engineering Improvements, Presentation by LMES, Technical Operations Division Staff, 8/23/00
- Y15-004PD, *Configuration Management Program*, 2/25/00
- *LMES Capital Projects Evaluation*, 8/7/00
- *Y-12 Modernization Projects Advisory Team Charter*, 2/25/00
- Y-12 Modernization Projects Advisory Team Reports, January through July 2000.

#### Interviews:

- DOE Program Division Manager
- DOE HEUMF Project Manager
- DOE SMC Project Manager
- DOE Program Division Project Management Senior Advisor

#### Observations:

- HEUMF Project Team Weekly Meeting, 8/29/00

### **Discussion**

The existence of the DOE Project Management Corrective Action Plan (CAP) and the Modernization Projects Advisory Team (MPAT) demonstrates a strong commitment from DOE ODP to improve a deficient Project Management system. The ODP Project Management System appears to have been an expert-based system that deteriorated due to disuse for major projects. Problems with the Hydrogen Fluoride Supply System (HFSS) project demonstrated the inadequacy of the ODP Project Management System. Unfortunately, the DOE HQ Project Management System (See DOE 4700.1 and DOE M413.X, Draft Program and Project Management Manual, 8/13/00) is also in a state of active repair and the Level I and II FRAMs have very little specificity for DOE Project Management responsibilities.

The ODP Program Division can be commended for their commitment to identify and close Project Management issues via the Project Management CAP. However, the approach to improving the Project Management System itself, seems to be piecemeal and often delayed due to resource limitations.

The continuing use of the MPAT to assess the status of the DOE Project Management System demonstrates a commitment to improving a weak system (SME.2-1 DOE). Obviously, resource limitations are preventing rapid closeout of all the Project Management System issues but the commitment to adding more rigor to the Project Management QTP and adding additional qualified Project Management staff is an important step in the right direction.

Interviews with two of the senior ODP Project Managers (Project Engineers) and the ODP Program Division Director indicated that only one of the three Project Managers is fully qualified to the ODP TQP requirements. A senior manager has been contracted to help fill the staffing gap but his role is principally to mentor the three Project Managers and to help develop a more rigorous qualification program. The hiring of an additional senior Project Manager has been authorized but the Director indicated the new Project Manager would manage the Project Managers rather than beef up the very thin Project Management staff.

## **ISMS ASSESSMENT FORM**

### **Y-12 Phase II**

Discussions with the senior Project Management support services contractor indicate that his main focus is on:

1. Developing a more rigorous Project Management TQP including independent certification of Project Managers (e.g., by PMI).
2. Helping to develop nine new ODP Project Management procedures.
3. Identification of technical gaps in Project Management team expertise.
4. Participation in the preparation of important LMES Project Management procedures such as configuration management.

The weekly HEUMF Core Team Meeting was well attended (about 15 attendees) and all of the participants appeared to be prepared and fully engaged in the process. The LMES Project Manager (Team Chair) led the meeting and it stayed on the agenda items. Each agenda item appeared to be well represented by the responsible person (save one on BCP backup that had to be deferred). One of the key items addressed was the PEP draft schedule and there were several actions discussed and taken to keep it on target. On several of the engineering issues (e.g., shielding pallet design and materials), there was an extensive discussion because many of the participants owned a piece of it. Generally the Chair followed the agenda and a lot was accomplished. Although they were non-voting members, the DOE Project Manager and his Senior Advisor often provided advice on the DOE/contractor interface and appeared to provide a very positive benefit to the meeting. All in all the meeting was focused, productive and the right people seemed to be in attendance.

Conclusion and Summary: The criteria for this objective have not been met.

#### Define Scope of Work

The DOE ODP Project Management System is a work in progress. A number of actions are under way to make the system more rigorous and to improve the Project Management staffing level and training. The Project Management issues management is working well with the help of MPAT. DOE ODP has developed a Project Management CAP that identifies, evaluates, and effectively addresses issues as they arise.

Only one DOE Project Manager appears to be fully qualified to the DOE ODP Project Management System but more importantly the ODP Project Management System is in the process of being upgraded. The DOE Project Managers review plans, schedules and resource assignments and assess progress on a day-to-day basis.

#### Clear Roles and Responsibilities

The Level II FRAM for DOE ORO does not provide much detail on the ODP roles and responsibilities for project management. Under the NNSA DOE ODP will apparently operate independently from DOE ORO. DOE ODP needs to take a more proactive role in defining the roles responsibilities, qualifications and training for their Project Managers.

## ISMS ASSESSMENT FORM

### Y-12 Phase II

#### Provide Feedback and Continuous Improvement

DOE Managers at all levels who are responsible for Project Management activities collect feedback information through self-assessment, monitoring against performance objectives, critiques/management reviews, external reports and routine observation.

DOE Project Managers monitor progress and identify improvement opportunities. Evaluation and analysis mechanisms include processes for translating information into improvement processes and appropriate lessons learned. Managers consider and resolve recommendations for improvement.

The DOE Issues Management program is effective. Issues are identified, evaluated, and addressed. An effective process exists to determine confirmation of closure action taken. There is a process to incorporate assessment findings and corrective actions into planning and/or training programs. Unfortunately, resource limitations have delayed closure for many of the DOE Project Management corrective actions.

#### Balanced Priorities

In view of the new emphasis of independence of ODP, DOE needs to develop a comprehensive, resource-loaded project management improvement plan so that Project Management System improvement, including training and staffing levels, can be planned, budgeted, prioritized and scheduled (SME.2-2 DOE).

#### Issues

##### Noteworthy Practices

SME.2-1 DOE     The continuation of the MPAT for the review of the DOE Project Management System is noteworthy. It clearly provides a driving force for bringing the DOE Project Management System up to expectations.

##### Opportunity for Improvement

SME.2-2 DOE     Since resource limitations appear to play a major role in the ability of ODP to improve the system, it makes sense to develop a comprehensive and resource loaded improvement plan so that Project Management System improvement, including training and staffing levels, can be planned, budgeted, and scheduled.

<div>Inspected by: _____</div> <div style="text-align: center;">Kenneth Perkins</div>	<div>Approved by: _____</div> <div style="text-align: center;">Joseph King ISM Team Leader</div>
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**ISMS ASSESSMENT FORM**  
**Y-12 Phase II**

<b>Functional Area: LMES Project Management</b>	<b>Criteria Met</b> <u>    </u> Yes <u><b>X</b></u> No <b>Date:</b> August 29, 2000
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**OBJECTIVE: SME.2 LMES (Project Management):** The Y-12 Project Management System and Project Management activities are effective and functioning at each level of the organization. Issues management is an integral part of the Y-12 Project Management System so that issues are identified, evaluated, and effectively addressed as they arise. (CCE-1, -6 and CE II-5)

Criteria

5. Project Managers are qualified and trained to the Y-12 Project Management System. They develop plans and schedules, assign resources and assess progress on a day to day basis.
6. Managers at all levels who are responsible for Project Management activities collect feedback information through self-assessment, monitoring against performance objectives, occurrence reporting, critiques/management reviews, external reports, routine observation and activity level feedback.
7. Project Managers monitor progress and identify improvement opportunities. Evaluation and analysis mechanisms include processes for translating information into improvement processes and appropriate lessons learned. Managers consider and resolve recommendations for improvement, including worker suggestions.
8. The Issues Management program is effective. Issues are identified, evaluated, and addressed. An effective process exists to determine confirmation of closure action. There is a process to incorporate assessment findings and corrective actions into planning and/or training programs.

Approach

Record Review: Review processes and resulting information resulting from roll-up and analysis of feedback and improvement data as well as how the information is being used to cause improvements in Project Management activities at the Y-12 Site.

Review the evidence file and determine effectiveness of the "Issues Management Program Description" (Y60-310PD) implementation and execution by selecting completed milestones from the corrective action plans.

Review the status of the Project Management System Corrective Action Plan (CAP) and determine its effectiveness in improving the Y-12 Project Management System. (Letter with attachment, *Response to Project Planning and Execution Issues*, Robert I. Van Hook, LMES, to G. Leah Dever, DOE, March 3, 2000)

Review the Y-12 Project Management System and the Project Management training and qualification program.

## ISMS ASSESSMENT FORM

### Y-12 Phase II

Review any completed management self-assessments (procedure Y60-902, "Management Assessment") relating to Project Management activities to ensure they focused the reviews on the adequate implementation of the core functions and principles of Integrated Safety Management in a manner consistent with the approved ISMS description and utilized the POCs.

Interviews: Interview line managers responsible for Project Management activities to assess their knowledge and involvement in evaluating feedback information, developing corrective action plans and completing corrective action commitments.

Interview line managers to discuss participation in self-assessment and feedback program.

Observations: Observe management meetings that deal with review of Project Management activities and status of progress.

Observe, if possible, a management self-assessment relating to Project Management activities to determine the effectiveness of the assessments.

Records reviewed:

- Y15-187, *Integrated Safety and Change Control Process*, 4/28/00
- Y90-027, *Conduct of Training Procedure*, 04/28/2000
- Y30-601, *Contract Management Baseline Change Control Process*, 11/4/99
- ESS-CM-101, Configuration Management, Revision 0
- Y60-331, *Lessons Learned Program*, 04/17/00
- Y60-902, *Management Assessment*, 03/15/00
- Y17-001, *Engineering, Design, and Construction*, 03/17/99
- Y60-310PD, *Issues Management Program Description*, 06/14/99
- Y15-007PD, *Y-12 Defense Programs Assessment Program Description*, 5/11/99
- ORO O 430, Chg. 5, *Life Cycle Asset Management*, 07/07/1999
- ORO O 360 Chg. 2, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities, 10/05/98
- Y30-601, *Contract Management Baseline Change Control Process*, 11/4/99
- Y15-002, Configuration Control Equipment Data Sheets, 07/22/99
- ORO M 411.1-1C, Level II FRAM, 03/01/00
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- Y/EN-6048, *Independent Project Review Report for SMRI*, March 2000
- IER-99-01, *Independent Project Review Report for 3500-TON Press*, December 1999
- LMES, ISMS, *Independent Internal Review Report*, August 2000
- DOE 4700.1, Chg. 1, *Project Management System*, 6/2/92
- DOE M 413.X, *DRAFT DOE Program and Project Management Manual*, 8/13/00
- Y13-001, *Energy Systems Project Delivery Process*, 11/23/99
- Y13-002, *Energy Systems Project Management Program Description*, 11/23/99
- *Y-12 Design Authority Implementation Plan*, Rev. 1, 4/24/00
- *Draft LMES Capital Project Validation Review Plan* 8/00
- Y15-635PD, Energy Systems ISMS, 7/27/00

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### Y-12 Phase II

- DNFSB Site Representatives Activities Report, July-August, 00
- Y12-020, Design Authority Policy, 11/18/99
- Conduct of Engineering Improvements, Presentation by LMES, Technical Operations Division staff, 8/23/00
- Y15-004PD, *Configuration Management Program*, 2/25/00
- *LMES Capital Projects Evaluation*, 8/7/00
- *Y-12 Modernization Projects Advisory Team Charter*, 2/25/00
- Y-12 Modernization Projects Advisory Team Reports, January - July 2000
- Y17-69-102PD *Independent Engineering Project Reviews*, 10/26/99
- Y17-69-407, *Project Team Organization and Responsibilities*, 9/30/99
- Y17-69-101, *Project Team Organization and Responsibilities*, 12/8/98
- Y/EF-538, *General Design Requirements*, 9-01-95
- LMES Project Management System Manual
- Y60-312, *Issues Management*, 07/28/99
- Y17-69-413, *Design Verification*, 03/16/00
- Y17-001, *Engineering, Design, and Construction Procedure*
- Y17-69-407, *Construction Change Control Procedure*, 9/30/99
- Facility Engineering Design Handbook, General Design Checklist
- Y60-313, *Root Cause Analysis Procedure*, 04/22/99

#### Interviews:

- LMES Technical Integration and Support Manager
- LMES Program Division Manager
- LMES HEUMF Project Manager
- LMES HEU Operations Representative on HEUMF Project Team
- LMES EUO Restart Project Manager
- LMES Program Division Project Management Senior Advisor
- LMES EUO Restart Project Manager
- LMES Quality Assurance Program Manager
- LMES Technical Integration Program Manager
- LMES Modernization Program Manager
- LMES Technical Operations Program Manager
- LMES Engineering Program Manager

#### Observations:

- HEUMF Project Team Weekly Meeting, 8/29/00

## **ISMS ASSESSMENT FORM**

### **Y-12 Phase II**

#### **Discussion**

The existence of the LMES Project Management CAP and the Modernization Project Advisory Team (MPAT) demonstrates a strong commitment from LMES to improve a deficient Project Management System. The LMES Project Management System appears to have been an expert-based system that deteriorated due to disuse for major projects. Problems with the Hydrogen Fluoride Supply System (HFSS) project demonstrated some of the problems with the LMES Project Management System. Unfortunately the DOE HQ Project Management System (See DOE 4700.1 and DOE M413.X, Draft Program and Project Management Manual, 8/13/00) is also in a state of active repair.

The LMES Modernization, Technical Operations and Quality Divisions can be commended for their commitment to identify and close Project Management issues via the LMES Project Management CAP.

LMES and ODP management chartered the MPAT (an independent team of experienced project management professionals) in November 1999 to identify systemic problems with their Project Management Systems and chart a course for improvement. The MPAT helped LMES identify the root causes for the Project Management System problems and develop a Project Management CAP in December 1999. Since that time LMES has set an aggressive course to address the corrective actions and to reorganize the Engineering and Modernization Programs. The objective is to provide more disciplined design and project management for the major (line-item) projects that are so vital to the future of Y-12.

The continuing use of the MPAT to assess the status of the LMES Project Management System improvements demonstrates a commitment to improving a weak system. Resource limitations are preventing rapid closeout of all the Project Management System issues but the commitment to adding more rigor to the LMES Project Management System training program and adding additional qualified Project Management staff is an important step in the right direction (SME.2-1 LMES).

Interviews with the Technical Operations Division staff indicated the breadth of an extensive effort to revitalize the engineering design organizations, to strengthen the engineering design procedures, to vest the Engineering Program with design authority, and to make quality and self-assessment a rigorous part of the engineering processes. Although there are a number of engineering procedures and configuration management procedures that still need to be completed, the major engineering corrective actions have been completed including a major reorganization of the Engineering Program. The apparent driver for this success story was the Y-12 Conduct of Engineering Improvement Implementation Plan (CEIIP) of 3/1/00 and Rev 1 of 4/24/00. Instead of being reactive to the numerous corrective actions that were accumulating from the Project Management CAP, continuing visits of the MPAT and the internal assessments of design projects (see IER-99-01), the Technical Operations Division rolled up the corrective actions into a comprehensive improvement plan with resource commitments, prioritization and realistic schedules.

## **ISMS ASSESSMENT FORM**

### **Y-12 Phase II**

Interviews with the Modernization Program Division staff indicated that similarly comprehensive changes have occurred and are still being implemented for the Project Management function to address the Project Management CAP and follow on MPAT concerns. Specifically:

1. Project Managers will undergo upgraded training requirements including independent Project Management certification.
2. The Project Management execution procedures are also being upgraded and formalized.
3. A senior manager has been contracted to help fill the Project Management staffing gap. His role is principally to mentor the HEUMF Project Manager and to help develop a more rigorous Performance Evaluation Plan (PEP) for the HEUMF Project.

The weekly HEUMF Core Team Meeting was well attended (about 15 attendees) and all of the participants appeared to be prepared and fully engaged in the process. The LMES Project Manager (Team Chair) led the meeting and it stayed on the agenda items. Each agenda item appeared to be well represented by the responsible person (save one on BCP backup that had to be deferred). One of the key items addressed was the PEP draft schedule and there were several actions discussed and taken to keep it on target. On several of the engineering issues (e.g., shielding pallet design and materials), there was an extensive discussion because many of the participants owned a piece of it. Generally, the Chair followed the agenda and a lot was accomplished. The LMES Senior Project Management Advisor interjected advice on how to keep the project on track several times and appeared to provide a very positive benefit of project experience to the meeting. All in all the meeting was focused, productive and the right people seemed to be in attendance.

Conclusion and Summary: The criteria for this objective have not been met.

#### Define the Scope of Work

The LMES Project Management System is a work in progress. A number of actions are underway to make the system more rigorous and to improve the Project Management staffing level and training. The Project Management issues management is working well with the help of MPAT. LMES has developed a Project Management CAP that evaluates and effectively addresses additional Project Management issues as they are identified. In addition to closing out individual issues from the Project Management CAP, the Technical Operations and Modernization Divisions are continuing to roll up issues and MPAT recommendations into comprehensive improvement plans that have the potential to make significant strides in improving the LMES Project Management System (SME.2-2 LMES). The CEIIP was promulgated in March and revised in April but the Project Management Improvement Implementation Plan is still in draft form.

The LMES Project Managers are qualified to the LMES Project Management System but more importantly, the LMES Project Management System is in the process of being upgraded. The Modernization Program Manager has budgeted for training and independent certification of his Project Managers through the Project Management Institute (PMI). He has contracted with a senior Project Management professional to mentor the HEUMF Project Manager and HEUMF project core team. The LMES major projects (line-item) have chartered, multi-disciplined teams that meet every week to review plans, schedules and resource assignments and assess progress.

## ISMS ASSESSMENT FORM

### Y-12 Phase II

#### Provide Feedback and Continuous Improvement

LMES Managers at all levels who are responsible for Project Management activities collect feedback information through self-assessment, monitoring against performance objectives, critiques/management reviews, external reports and routine observation. The engineering project review reports (e.g., IER-99-01) appear to have been instrumental in identifying systemic problems in the engineering processes.

LMES Project Managers monitor progress and identify improvement opportunities. Evaluation and analysis mechanisms include processes for translating information into improvement processes and appropriate lessons learned. Managers consider and resolve recommendations for improvement. The MPAT has played a key role in identifying improvement opportunities in the Project Management program.

#### Balanced Priorities

The LMES Issues Management program is effective. Issues are identified, evaluated, and addressed. An effective process exists to determine confirmation of closure action. There is a process to incorporate assessment findings and corrective actions into planning and/or training programs. LMES needs to complete the Project Management System Improvement Implementation Plan (PMSIIP). It would be helpful if the PMSIIP is developed as a “projectized” comprehensive and resource-loaded plan so that Project Management System improvement, including training and staffing levels, can be planned, budgeted, prioritized and scheduled (SME.2-3 LMES).

#### Issues

##### Noteworthy Practices

- |              |                                                                                                                                                                                                                                                                                                                                                            |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SME.2-1 LMES | The continuation of the MPAT for the review of the LMES Project Management System is noteworthy. It clearly provides a driving force for bringing the LMES Project Management System up to DOE expectations.                                                                                                                                               |
| SME.2-2 LMES | The roll up of the engineering related corrective actions into a projectized “Y-12 Conduct of Engineering Improvement Implementation Plan” that integrates all the engineering corrective actions into a cohesive, resource-loaded improvement implementation plan provided the basis for an effective and efficient realignment of engineering functions. |

**ISMS ASSESSMENT FORM**  
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Opportunity for Improvement

SME.2-3 LMES Since resource limitations appear to play a major role in the ability of LMES to improve the Project Management system, it makes sense to develop a comprehensive and resource-loaded improvement plan so that Project Management System improvements, including training and staffing levels, can be planned, budgeted, prioritized and scheduled.

Inspected by: _____ Kenneth Perkins	Approved by: _____ Joseph King ISM Team Leader
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<b>Functional Area: SME Fire Protection</b>	<b>Criteria Met</b> <input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <b>Date:</b> August 29, 2000
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**OBJECTIVE: SME.3 (Fire Protection):** The ODP and LMES have provided an adequate fire protection program. Previously identified issues related to the development, funding, and staffing of the fire protection program are being addressed in a manner that supports safely completing the Y-12 mission.

NOTE:

*A portion of this area will be addressed in the BBC and Management CRAD.*

Criteria

1. ODP and LMES management has committed to an adequate Fire Protection Program that is based upon analysis including the Fire Hazard Analysis (FHA).
2. The Fire Protection Program is adequately staffed and funded.
3. Identified discrepancies are evaluated and corrected in a timely manner.
4. Performance objectives and measures are used by management to assure that the Fire Protection Program is effective.

Approach

**Record Review:** Review the corrective action plans of previous assessments including the 1998 ISMS Verification to determine if discrepancies are evaluated and corrected in a timely manner. Determine if there is a self-assessment program in place that contributes to continuous improvement of the Fire Protection Program.

**Interviews:** Interview facility staff and fire protection personnel to assess the integration of the Fire Protection Program with the Y-12 mission. Determine if the fire protection staff is integrated into facility safety mechanisms, for example the Operations Safety Board (OSB).

**Observations:** Observe the involvement of the fire protection staff in facility operations including the conduct of authorization basis related surveillances.

**Records reviewed:**

- Fire Protection Program Assessment, Y/FPE-069, March 29, 2000 (draft)
- Defense Nuclear Facilities Safety Board Staff Issue Report, "Review of Fire Protection Program, Y-12 Plant," July 19, 2000
- Fire Protection Operations Compliance Review and Disposition of Findings Cited in the Site Management ISMS Self-Assessment

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- Integrated Safety Management System (ISMS) Phase I and II Verification Report (980515) Corrective Action Plans (CAPs)
- Fire Protection Test, Maintenance, and Inspection (TM&I) Request For Approval, LMES/Y-12-DOE-5480.7A-CSA-166C, August 13, 1998
- ESAMS Issue Response Report, S3551, Y-12 IM Deficiencies
- ESAMS Issue Response Report I37468, ISM Evaluation of Y-12 Plant Response
- ESAMS Issue Response Report I38612, Management of Fire Protection Compensatory Measures
- Issue Response Report S4388, DOE Y-12 Site Office Monthly Assessment Report, YSO-98-10
- TM&I Maintenance Job Request (MJR) Report, 2/14/2000
- List of Dry-Pipe Sprinkler Systems last tested 1997 or earlier, with priority ranking
- Y-12 Site Fire Protection Program Manual, Y79-001INS, rev. date 6/15/2000
- Fire Safety Inspection Procedure, Y79-01-001, effective date 10/29/99
- Memorandum, from E.J. Bergin to F.H. Akers et al., "Implementation Plan for Y-12 Site Fire Protection Program Manual (Y79-001INS), June 16, 2000
- Memorandum from E.J. Bergin to F.H. Akers et al., "Implementation Plan for Y-12 Site Fire Protection Program Manual (Y79-001INS), August 7, 2000 (supersedes June 16, 2000 memo
- Operational Safety Board Charter, 7/18/00
- Fire Detection Alarm, and/or Fire Suppression System Outages: Compensatory Measures, Y40-020, rev. 7/17/96
- Facility-Related Fire Protection Engineering Assessment, Y79-54-FPE-004, rev. 6/21/00
- Fire Hazard Analysis, Y79-54-FPE-026, Rev. 6/21/00
- Fire Hazard Analysis For Building 9215, Y12-FPE-FHA-004-98, September 30, 1998
- Fire Hazard Analysis For Building 9212, Y/FPE-037, September 29, 1999
- Fire Hazard Analysis For Building 9204-2, Y12-FPE-FHA-001-98, August 7, 1998
- OSB Meeting Log, Fire Protection Program Management Assessment, Log number 00-19, 4/13/00
- Letter, E.J. Bergin to W.J. Brumley, "Contract DE-AC05-84OR21400, Baseline Change Proposals (BCPs)," and attachment, June 21, 2000
- Y-12 Programmatic Assessment Report, 6/28/00
- Fire Systems Management Self Assessment Card, Assessment of Parametric Tracking and Trending, 4/23/99 and 1/27/00
- LMES Design Analysis and Calculations (DAC), "Consequence Estimates for Fire Hazard Evaluation, B-1 Wing of Building 9212, June 15, 1999
- Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex, Y/MA-7255, January, 2000
- Letter, H.T. Conner, Jr. to W.J. Brumley, "Contract DE- AC05-84OR21400, Fire Protection in B-1 Wing, Building 9212," June 7, 2000
- Letter, R.J. Spence to F. P. Gustavson, "Y-12 Equivalency Request For Testing and Maintenance of Fire Protection Systems," July 29, 1996
- Maintenance Activities At the Y-12 Plant, U.S. DOE Office of Inspector General Audit Report ER-B-99-07, May, 1999
- Fire Protection Operations FY2000 TMI Status graph

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#### **Interviews:**

- Fire Operations Manager (LMES)
- Site Management Team Lead (LMES)
- Fire Department Operations Manager (LMES)
- Fire Protection Engineer (LMES)
- Fire Protection Engineer (ODP)
- Maintenance workers
- Maintenance Shift Supervisor

#### **Observations:**

- Dry-pipe sprinkler system flushing evolution

#### **Discussion**

The Y-12 Fire Protection Program was reviewed to verify that it is adequate to support safe operations at the site and fulfills the Y-12 mission, while incorporating the principles of Integrated Safety Management. This includes verifying that ODP and LMES management are committed to the effort. The Fire Protection Program is composed of the following organizations: Fire Protection Operations Management, Fire Department Operations (FDO), including the Testing, Maintenance, and Inspection (TMI) section, Fire Protection Engineering (FPE), and Fire Systems Management (FSM). An established fire protection organization exists, with functions, assignments, responsibilities, and reporting relationships of the fire protection personnel clearly defined, understood, and implemented. Fire Hazards Analyses are performed in accordance with DOE Order 420.1. They include sufficient detail and depth such that conclusions related to the ability of fire protection to mitigate off-site consequences can be drawn by Facility Safety personnel for input into facility Authorization Basis documents. The FDO is adequately staffed for emergency response as a result of a recent reorganization that provides 14 fire service personnel on each of 4 shifts (previously there were 10 per shift). Fire Department equipment and emergency response vehicles are adequate to respond to anticipated site emergencies. Additional personnel are available from the other Oak Ridge sites, and from the City of Oak Ridge Fire Department through a Mutual Aide Agreement. Call-back service of off-duty firefighters is also available.

A recent Fire Protection Program Assessment was conducted by a qualified Fire Protection Engineer with extensive work experience at Y-12. The report, "Fire Protection Program Assessment, Y-12 Plant," Y/FPE-069, March 29, 2000, presents an unbiased, comprehensive assessment of the Fire Protection program at Y-12. Fifteen separate areas were addressed, including Comprehensiveness of the Fire Protection Program, Maintenance, Testing, and Inspections, Management Support, Fire Hazards Analysis, and Conformance with S/RIDS. Strengths and weaknesses were provided for each area, with a total of 45 strengths and 64 deficiencies or weaknesses identified. Several of the findings from this report were described in the DNFSB Staff Issue Report, "Review of Fire Protection Program, Y-12 Plant," July 19, 2000. The March program assessment concluded that the Y-12 Plant Fire Protection Program has significant shortcomings. It states that, in general, building management and facility workers do not understand the potential fire risks in the plant, what constitutes a fire hazard, nor what the consequences of a fire are in their facilities. Also, the ISMS Program "cannot be successful from

## **ISMS ASSESSMENT FORM**

### **Y-12 Phase II**

a fire protection prospective at the Y-12 Plant, because of a lack of fundamental knowledge and understanding of what constitutes a “fire hazard.” A management commitment to fire protection similar to that seen for the security organization or the health physics organization (RADCON) does not exist at Y-12. This is true despite the fact that facility safety documentation continues to conclude that fire is the most probable scenario for an off-site release of radioactive material. The March, 2000 assessment concludes that fire is not perceived as a concern by DOE and plant management as indicated by the limited support and limited amount of resources allocated to the program. It also correctly points out that this lack of support is “manifested in the hundreds of uncorrected deficiencies identified in the management tracking system (ESAMS) related to the Fire Protection Program.” Another finding of the report identified discrepancies are not corrected in a timely manner. It stated that many identified findings and recommendations from previous FPE Assessments and FHAs have not been corrected. Compensatory measures, put in place as a result of identified deficiencies, become de facto “permanent corrective actions.”

Encouragingly, steps are finally being taken to raise the Fire Protection Program to an adequate level. Disposition of each of the findings of the Fire Protection Program Assessment has been attempted. Each deficiency identified has been evaluated and entered into the ESAMS for tracking if not already being tracked. A Fire Protection Program Manual has been developed, which defines the role and mission of Fire Protection Engineering. It is a comprehensive document that also defines, from an operational standpoint, the roles of all fire protection related organizations and responsibilities of all site-level organizations, from management down to Facility Managers and site personnel. It is currently pending site-wide implementation (it has an effective date of December 15, 2000, to allow for planning fund allocation for FY2001). A follow-up assessment will be performed by June 2001 to ensure implementation is occurring across the site. Staffing of the Fire Protection Engineering and Fire Systems Management departments is being adequately addressed. The present Y-12 staffing of four Fire Protection Engineers and three Fire Systems Management personnel is insufficient to perform the minimum contractual requirements stipulated in the S/RIDs. To correct this, a requisition was recently issued to add three Fire Protection Engineers to the staff. Another positive sign is the Y-12 General Manager’s approach to ES&H, (i.e., his desire to “operate a compliant plant,” rather than “do the best with whatever resources remain” after completing perceived higher priority tasks) (FP.2-1).

In the inspector’s view, the two most troublesome issues are: 1) reduction of the tremendous back-log of Testing, Maintenance, and Inspection (TM&I) items, and 2) allocation of adequate funding to implement the Fire Protection Program Manual.

A review of Fire Protection system TM&I Maintenance Job Request (MJR) reports shows approximately 400 TM&I jobs waiting to be done. In many cases, the DOE and NFPA required TM&I frequencies are not being met. The only TM&I work accomplished on schedule is that associated with the Limited Condition of Operation (LCO) fire sprinkler systems. In the long run, performing the scheduled maintenance on the Fire Protection systems is more cost effective than letting the maintenance intervals lapse, until inevitably a system fails to operate as designed, potentially during a fire emergency (FP.2-2).

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### **Y-12 Phase II**

Current funding is not adequate to accomplish the huge amount of work required to bring Y-12 up to an acceptable level of fire safety. There is currently no concrete assurance that ODP and LMES management is committed to providing a comprehensive, site-wide Fire Protection Program. If Y-12 management truly wants to show it is committed to raising fire protection to an adequate level, then providing sufficient funding, allocated effectively, is the best way to do so (FP.2-3).

Conclusion and Summary: The criteria for this objective have not been met.

ISMS has not been adequately implemented at Y-12 in the Fire Protection area. There is no long term plan in place to ensure that persistent deficiencies in the program are corrected, in particular the backlog of testing and inspection items and development and update of FHAs,. The basis of the budget submittals are not developed with the goal of compliance in mind, but rather simply maintaining the current level of non-compliance. Despite recent noteworthy efforts to improve the Fire Protection Program to an adequate level that supports safely completing the Y-12 mission, the Program falls short of that goal at the time of this review. Because of the degree to which the Program has deteriorated over many years, turning it around and making it acceptable will take a huge effort and much time to accomplish. Additionally, a philosophical change in how fire protection is perceived, especially by management, is needed. A management commitment, similar to that seen for the security organization or the health physics organization (RADCON), is needed. The first steps in turning the program around have been taken—a Fire Protection Program Manual has been developed, staffing will be increased, and management attention to fire protection issues appears to be increasing. Time will tell if this momentum continues and Y-12 follows through on its commitment.

#### Define the Scope of Work

The expectations of the Fire Protection Program are well established and clearly defined in the S/RIDs, which incorporate DOE Order 420.1 and National Fire Protection Association codes and standards. Fire protection has been incorporated into the safety authorization bases for the Y-12 Plant nuclear facilities through use of the Fire Hazards Analyses. Tasks have been identified and tracked using the ESAMS, and the back-log of IT&M items is now being prioritized using a rating system. Sufficient resources have not been allocated to the Fire Protection Program in the past to accomplish the tasks necessary to achieve an adequate program.

#### Analyze the Hazards

DOE ISMS procedures and mechanisms are in place and used to ensure hazards are analyzed, adequate controls are developed, and work is formally and appropriately analyzed and performed safely. The Y-12 contract incorporates S/RIDs and Work Smart Standards, which were found to adequately encompass the total set of potential fire hazards at Y-12. Procedures are in place and functioning to ensure proper flowdown of these requirements into implementing procedures. The FHAs for Y-12 facilities were found to be comprehensive, with sufficient detail to allow conclusions concerning the ability of fire protection to mitigate fire hazards to be formulated.

#### Perform Work within Controls

A review of the Fire Protection Program, including observing a dry-pipe sprinkler system flushing evolution, indicated readiness is confirmed and work is performed safely.

## ISMS ASSESSMENT FORM

### Y-12 Phase II

#### Provide Feedback and Continuous Improvement

Feedback information on the adequacy of controls has been limited in the past. In part due to the huge back-log of IT&M items, there has been a lack of focus on providing opportunities for improvement, such as post-job briefs. Recently, Performance Measurement Teams (PMTs) have been created. Each shift is considered a PMT. Their purpose is to discuss how they do work, what will help them do a better job, and what should be tracked.

Issues

Noteworthy Practices

FP.2-1      Several initiatives, such as developing a Fire Protection Program Manual and the hiring of three new Fire Protection Engineers, are encouraging.

Opportunities for Improvement

FP.2-2      As it was identified in the ISMS Verification Phase I review in 1998, there is an excessive back-log of fire protection Testing, Maintenance, and Inspection (TM&I) jobs. There are currently approximately 400 fire protection TM&I jobs waiting to be done.

FP.2-3      Line management and ODP have failed to use ISMS mechanisms, in accordance with an agreed upon long-range plan, to raise the Y-12 Fire Protection Program to a compliant level.

<div>Inspected by: _____</div> <div style="text-align: center;">William A. Froh</div>	<div>Approved by: _____</div> <div style="text-align: center;">Joseph King ISM Team Leader</div>
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